Personal Data Management

Use the SAP Personal Data Manager (PDM) with a CAP application.

> **To follow this cookbook hands-on you need an enterprise account.**
>
> The SAP Personal Data Manager service is currently only available for enterprise accounts . An entitlement in trial accounts is not possible.

SAP BTP provides the *SAP Personal Data Manager (PDM)* which allows administrators to respond to the question "What data of me do you have?". To answer this question, the PDM service needs to fetch all personal data using an OData endpoint. That endpoint has to be provided by the application as follows.

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Annotate Personal Data

First identify entities and elements (potentially) holding personal data using `@PersonalData` annotations, as explained in detail in the *Annotating Personal Data chapter* of these guides.

> We keep using the Incidents Management reference sample app .

Provide a Service Interface to SAP Personal Data Manager

SAP Personal Data Manager needs to call into your application to read personal data so you have to define a respective service endpoint, complying to the interface required by SAP Personal Data Manager. Following the CAP principles, we recommend adding a new dedicated CAP service that handles all the personal data manager requirements for you. This keeps the rest of your data model clean and enables reuse, just as CAP promotes it.

CAP Service Model for SAP Personal Data Manager

Following the best practice of separation of concerns, we create a dedicated service for the integration with SAP Personal Data Manager:

srv/pdm-service.cds

```cds
using {sap.capire.incidents as db} from '../db/schema';

@requires: 'PersonalDataManagerUser' // security check
service PDMService @(path: '/pdm') {

  // Data Privacy annotations on 'Customers' and 'Addresses' are derived from
  entity Customers                as projection on db.Customers;
entity Addresses                as projection on db.Addresses;
entity Incidents                as projection on db.Incidents

// create view on Incidents and Conversations as flat projection
entity IncidentConversationView as
    select from Incidents {
            ID,
            title,
            urgency,
            status,
        key conversation.ID        as conversation_ID,
            conversation.timestamp as conversation_timestamp,
            conversation.author    as conversation_author,
            conversation.message   as conversation_message,
            customer.ID            as customer_ID,
            customer.email         as customer_email
    };

// annotate new view
annotate PDMService.IncidentConversationView with @(PersonalData.EntitySema
    customer_ID @PersonalData.FieldSemantics: 'DataSubjectID';
};

// annotations for Personal Data Manager - Search Fields
annotate Customers with @(Communication.Contact: {
      n    : {
          surname: lastName,
          given  : firstName
      },
      bday : dateOfBirth,
      email: [{
        type   : #preferred,
        address: email}]
  });

};
```

TIP

Make sure to have indicated all relevant entities and elements in your domain model.

Provide Flat Projections

As an additional step, you have to create flat projections on the additional business data, like transactional data.

In our model, we have `Incidents` and `Conversations`, which are connected via a composition. Since SAP Personal Data Manager needs flattened out structures, we define a helper view `IncidentConversationView` to flatten this out.

We have to then add data privacy-specific annotations to this new view as well. The `IncidentConversationView` as transactional data is marked as `Other`. In addition, it is important to tag the correct field, which defines the corresponding data subject, in our case that is `customer_ID @PersonalData.FieldSemantics: 'DataSubjectID';`

Annotating Search Fields

In addition, the most important search fields of the data subject have to be annotated with the corresponding annotation `@Communication.Contact`.

To perform a valid search in the SAP Personal Data Manager application, you will need *Surname*, *Given Name*, and *Email* or the *Data Subject ID*. Details about this annotation can be found in Communication Vocabulary .

Alternatively to the tuple *Surname*, *Given Name*, and *Email*, you can also use *Surname*, *Given Name*, and *Birthday* (called `bday`), if available in your data model. Details about this can be found in SAP Personal Data Manager - Developer Guide .

Restrict Access Using the `@requires` Annotation

To restrict access to this sensitive data, the `PDMservice` is protected by the `@requires: 'PersonalDataManagerUser'` annotation. Calling the `PDMservice` externally without the corresponding permission is forbidden. The Personal Data Manager service calls the `PDMservice` with the needed role granted. This is configured in the *xs-security.json* file, which is explained later.

↳ *Learn more about security configuration and the SAP Personal Data Manager.*

At this point, you are done with your application. Let's set up the SAP Personal Data Manager and try it out.

Connecting SAP Personal Data Manager

Next, we will briefly detail the integration to SAP Personal Data Manager. A more comprehensive guide, incl. tutorials, is currently under development. For further details, see the SAP Personal Data Manager Developer Guide .

Activate Access Checks in *xs-security.json*

Because we protected the `PDMservice` , we need to establish the security check properly. In particular, you need the *xs-security.json* file to make the security check active. The following *xs-security.json* is from our sample.

```json
{
  "xsappname": "incidents-mgmt",
  "tenant-mode": "shared",
  "scopes": [
    {
      "name": "$XSAPPNAME.PersonalDataManagerUser",
      "description": "Authority for Personal Data Manager",
      "grant-as-authority-to-apps": [
        "$XSSERVICENAME(pdm)"
      ]
    }
  ]
}
```

Here you define that your personal data manager service instance, called `pdm` , is allowed to access your CAP application granting the `PersonalDataManagerUser` role.

Add `@sap/xssec` Library

To make the authentication work, you have to enable the security strategy by installing the `@sap/xssec` package:

```sh
npm install @sap/xssec
```

↳ *Learn more about authorization in CAP using Node.js.*

Build and Deploy Your Application

The Personal Data Manager can't connect to your application running locally. Therefore, you first need to deploy your application. In our sample, we added two manifest files using `cds add cf-manifest` and SAP HANA configuration using `cds add hana` .

The general deployment is described in detail in Deploy Using Manifest Files.

Make a production build:

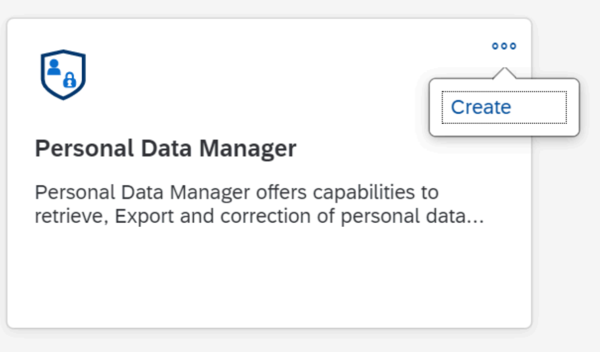
```sh
cds build --production
```

Deploy your application:

```sh
cf create-service-push
```

Subscribe to SAP Personal Data Manager Service

Subscribe to the service from the *Service Marketplace* in the SAP BTP cockpit.


Create
Personal Data Manager
Personal Data Manager offers capabilities to retrieve, Export and correction of personal data...

Follow the wizard to create your subscription.

Create Role Collections

SAP Personal Data Manager comes with the following roles:

Role Name	Role Template
PDM_Administrator	PDM_Administrator
PDM_CustomerServiceRepresentative	PDM_CustomerServiceRepresentative

Role Name	Role Template
PDM_OperatorsClerk	PDM_OperatorsClerk

All of these roles have two different *Application Identifiers*.

> **TIP**
>
> Application identifiers with **!b** are needed for the UI, and identifiers with **!t** are needed for executing the Postman collection.

↳ *Learn more about defining a role collection in SAP BTP cockpit*

Create a Service Instance

You need a configuration file, like the following, to create a service instance for the Personal Data Manager.

`pdm-instance-config.json`

```json
{
  "xs-security": {
    "xsappname": "incidents-mgmt",
    "authorities": ["$ACCEPT_GRANTED_AUTHORITIES"]
  },
  "fullyQualifiedApplicationName": "incidents-mgmt",
  "appConsentServiceEnabled": true
}
```

Create a service instance using the SAP BTP cockpit or execute the following command:

```sh
cf create-service personal-data-manager-service standard incidents-mgmt-pdm -
```

Bind the Service Instance to Your Application.

With both the application deployed and the SAP Personal Data Manger service set up, you can now bind the service instance of the Personal Data Manager to your application. Use the URL of your application in a configuration file, such as the following example, which you need when binding a service instance.

pdm-binding-config.json

```json
{
  "fullyQualifiedApplicationName": "incidents-mgmt",
  "fullyQualifiedModuleName": "incidents-mgmt-srv",
  "applicationTitle": "PDM Incidents",
  "applicationTitleKey": "PDM Incidents",
  "applicationURL": "https://incidents-mgmt-srv.cfapps.eu10.hana.ondemand.com
  "endPoints": [
    {
      "type": "odatav4",
      "serviceName": "pdm-service",
      "serviceTitle": "Incidents Management",
      "serviceTitleKey": "IncidentsManagement",
      "serviceURI": "pdm",
      "hasGdprV4Annotations": true,
      "cacheControl": "no-cache"
    }
  ]
}
```

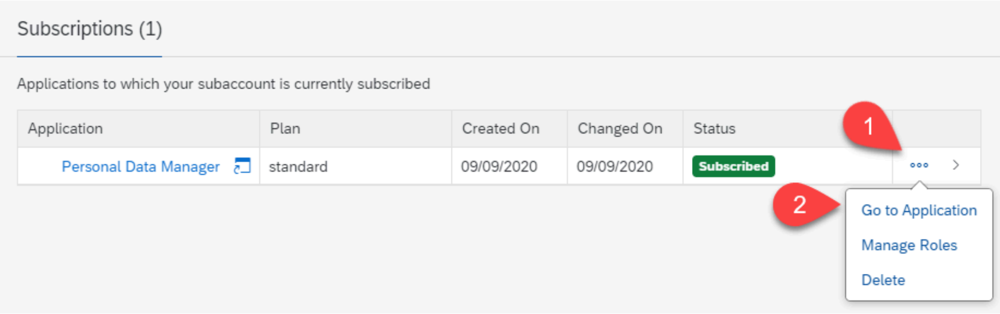
Here the `applicationURL`, the `fullyQualifiedModuleName`, and the `serviceURI` have to be those of your Cloud Foundry deployment and your CAP service definition (*services-manifest.yaml*).

Bind the service instance using the SAP BTP cockpit or execute the following command:

```sh
cf bind-service incidents-mgmt-srv incidents-mgmt-pdm -c ./pdm-binding-config
```

Using the SAP Personal Data Manager Application

Open the SAP Personal Data Manager application from the *Instances and Subscriptions* page in the SAP BTP cockpit.

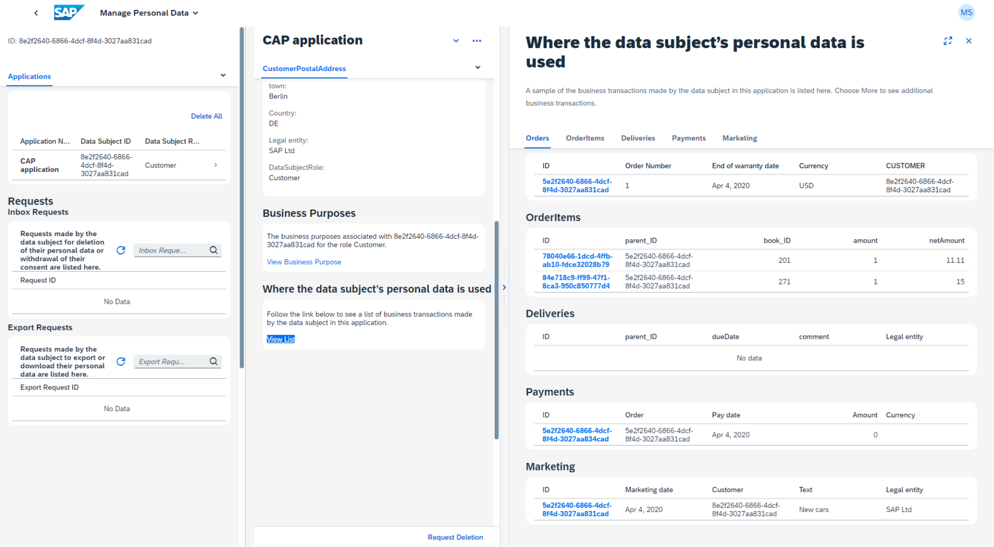


Subscriptions (1)

Applications to which your subaccount is currently subscribed

Application	Plan	Created On	Changed On	Status
Personal Data Manager	standard	09/09/2020	09/09/2020	Subscribed

In the personal data manager application you can search for data subjects with *First Name*, *Last Name*, and *Date of Birth*, or alternatively with their *ID*.



ID: 8e2f2640-6866-4dcf-8f4d-3027aa831cad

Applications

Delete All

Application N...	Data Subject ID	Data Subject R...
CAP application	8e2f2640-6866-4dcf-8f4d-3027aa831cad	Customer

Requests

Inbox Requests

Requests made by the data subject for deletion of their personal data or withdrawal of their consent are listed here.

Request ID
No Data

Export Requests

Requests made by the data subject to export or download their personal data are listed here.

Export Request ID
No Data

CAP application

CustomerPostalAddress

town:
Berlin

Country:
DE

Legal entity:
SAP Ltd

DataSubjectRole:
Customer

Business Purposes

The business purposes associated with 8e2f2640-6866-4dcf-8f4d-3027aa831cad for the role Customer.

View Business Purpose

Where the data subject's personal data is used

Follow the link below to see a list of business transactions made by the data subject in this application.

View List

Request Deletion

Where the data subject's personal data is used

A sample of the business transactions made by the data subject in this application is listed here. Choose More to see additional business transactions.

ID	Order Number	End of warranty date	Currency	CUSTOMER
5e2f2640-6866-4dcf-8f4d-3027aa831cad	1	Apr 4, 2020	USD	8e2f2640-6866-4dcf-8f4d-3027aa831cad

OrderItems

ID	parent_ID	book_ID	amount	netAmount
78040e66-1dcd-4ffb-ab10-fdce32028b79	5e2f2640-6866-4dcf-8f4d-3027aa831cad	201	1	11.11
84e718c9-ff99-47f1-8ca3-950c850777d4	5e2f2640-6866-4dcf-8f4d-3027aa831cad	271	1	15

Deliveries

ID	parent_ID	dueDate	comment	Legal entity
No data				

Payments

ID	Order	Pay date	Amount	Currency
5e2f2640-6866-4dcf-8f4d-3027aa834cad	5e2f2640-6866-4dcf-8f4d-3027aa831cad	Apr 4, 2020	0	

Marketing

ID	Marketing date	Customer	Text	Legal entity
5e2f2640-6866-4dcf-8f4d-3027aa831cad	Apr 4, 2020	8e2f2640-6866-4dcf-8f4d-3027aa831cad	New cars	SAP Ltd

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