Controlling Containerized xUML Services Kubernetes

You have two options to deploy xUML services as a Kubernetes workload:

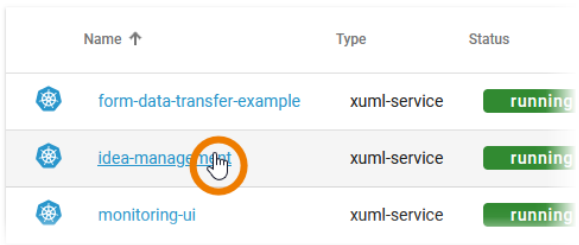
1. The PAS Administration offers a deployment wizard (refer to Working With the Deployment Wizard for details).
2. You can also deploy Designer services directly to the deployment target **Container** (refer to Designer Guide > Selecting the Deployment Target).

xUML services that run in Kubernetes have extended details to manage this type of service.

> We recommend using container deployment as the default deloyment target starting with PAS 23.1. For further information see:
>
> - Designer Guide > Service Deployment Details > Container Deployment
> - Administration Guide > Controlling Containerized xUML Services

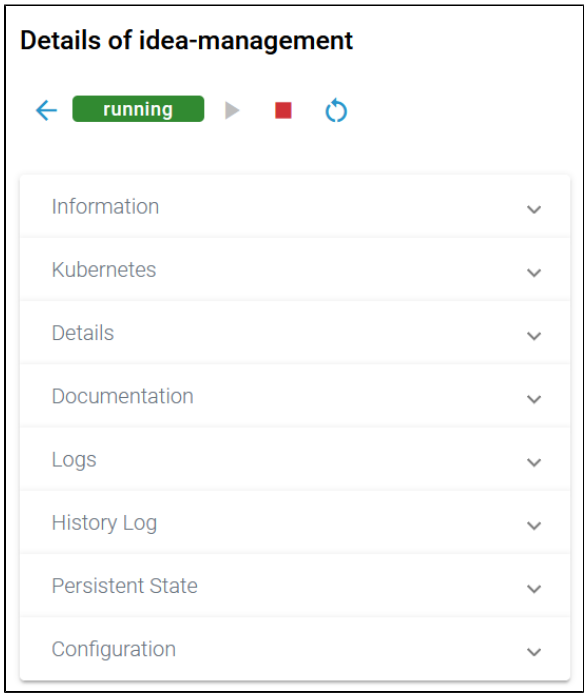
On this Page:

Using the Workload Details



You can open a details page for each workload.

To do so, click on the service name in the list.



Click on a name in the service list to open its details page.
The details page shows you the title of the service and some quick action icons:

Icon	Description
running	Shows the current state of the service.
▶	Starts the service.
■	Stops the service.
↻	Restarts the service.

It also contains different collapsable sections:

- **Information**
- **Details**
- **Documentation**
- **Logs**
- **History Log** (**PAS 24.0**)
- **Persistent State**
- **Configuration**

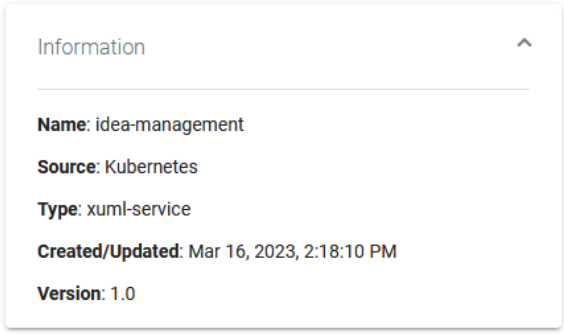
Related Pages:

- Working With the Administration
  - Working With the Deployment Wizard
- Controlling Kubernetes Workloads

Related Documentation:

- Official Kubernetes documentation
  - Resource Management for Pods and Containers
  - Scheduling, Preemption and Eviction

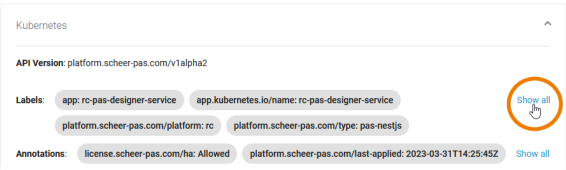
Information



The **Information** section contains the main information about the Kubernetes workload:

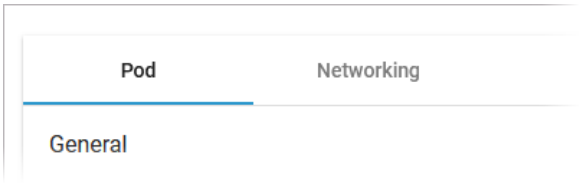
- **Name**
- **Source** is *Kubernetes* for workloads
- **Type**
- **Created/Updated**
- **Version**

Kubernetes



On top of the **Kubernetes** section, you find the information about

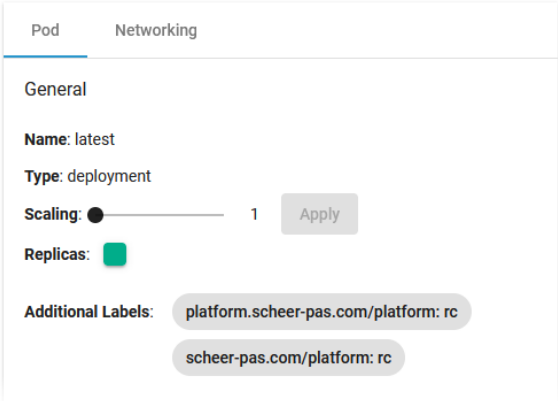
- **API Version:** Defines the versioned schema of this representation of a Kubernetes workload.

	• **Labels:** Map of string keys and values that can be used to organize and categorize (scope and select) workloads. • **Annotations:** Unstructured key value map stored with a resource that may be set by external tools to store and retrieve arbitrary metadata. Click **Show all** to display all available labels or annotations.
	Below this information, you can find the two tabs **Pod** and **Networking**.

Pod

Tab **Pod** contains the sections **General** and **Container**. The information displayed in the two sections is read-only.

Pod - General



Section **General** contains common information about the Pod:

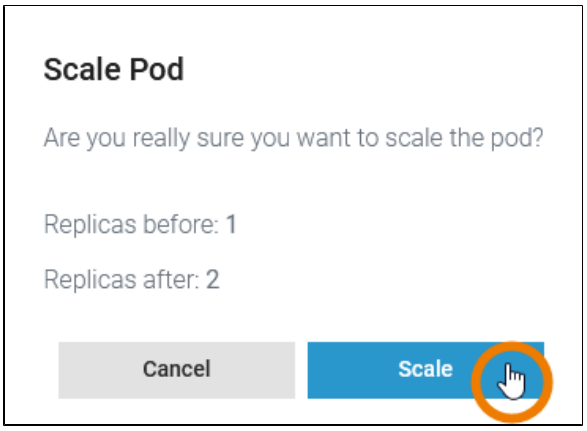
Name	Version name of the Pod.
Type	Shows the internal type of the replication controller.
Scaling	If available, you can adapt the number of Pod replicas (see below).
Replicas	Shows the number of Pod replicas.
Additional Labels	Shows additional Pod labels if set.

Icon Color	Status
Green	Running
Orange	Starting
Red	Not running /erroneous

Scaling the Number of Replicas

Move the position of the slider to the desired number of replicas you want to set.

Click **Apply**.

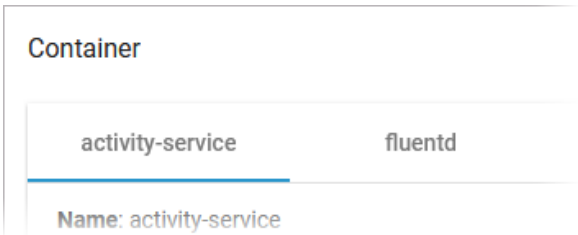


A pop-up window opens displaying the number of replicas before and after the change.

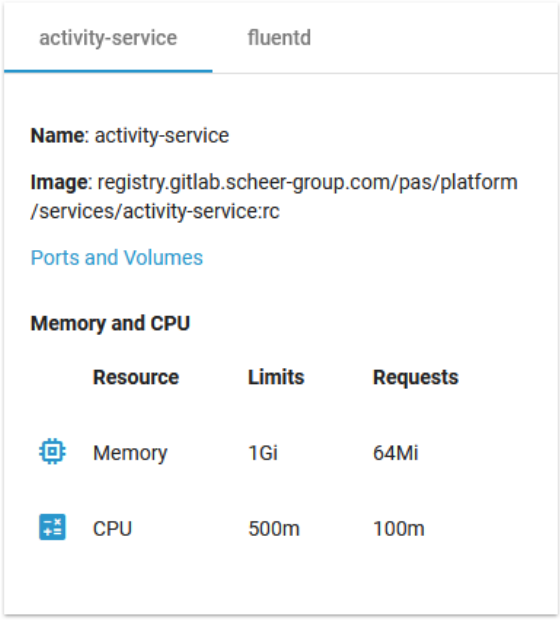
Click **Scale** to confirm your choice or **Cancel** to abort.

The new number of replicas is displayed after a refresh of the browser tab.

Pod - Container



Section **Container** consists of several tabs, one tab for each container.



The content of the tabs is the same for all containers and displays the container details:

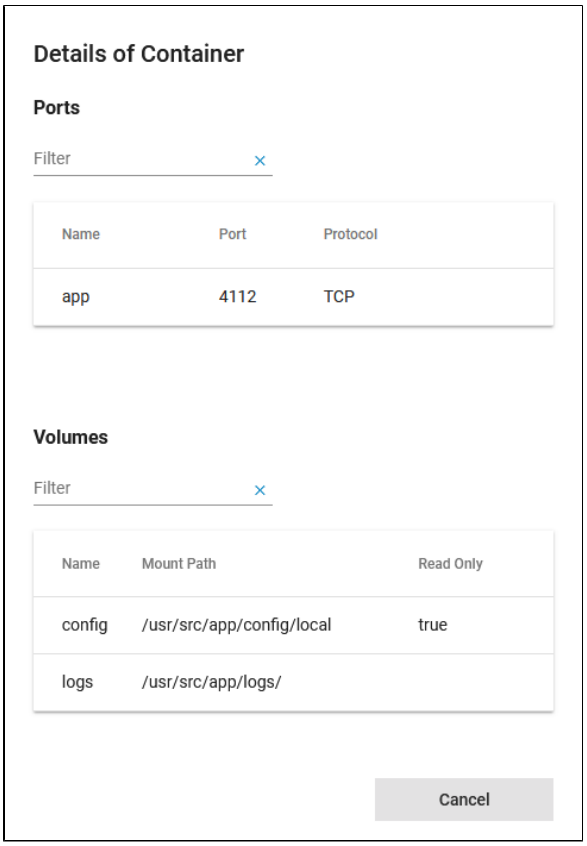
Name	Name of the container.
Image	Image of the container.
Ports and Volumes	See below.

Memory and CPU	Shows the container limitations. If a container exceeds its memory request and the node that it runs on becomes short of memory overall, it is likely that the Pod the container belongs to will be evicted. Limitations cannot be changed by users. They are set during system deployment

	Limits	Requests
Memory	If the memory limit is exceeded, the container will run in state **OutOfMemory** and then be killed.	If a container exceeds its memory request and the node that it runs on becomes short of memory overall, it is likely that the Pod the container belongs to will be **evicted**.
CPU	If the CPU limit is exceeded, the container will be throttled, the process will slow down.	If the CPU memory request exceeds the nodes (server) capacity, the P od can be stopped and stared on a different node.

Visit the official Kubernetes documentation for more information:

- Resource Management for Pods and Containers for detailed information abour requests and limits.
- Scheduling, Preemption and Eviction about the rules regarding the termination of pods.

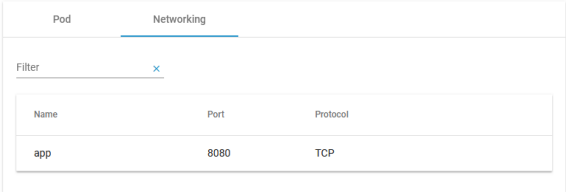


If you click the link **Ports and Volumes** , the container details open in a separate pop-up.

- **Ports:** Displays a list of all ports exposed in the internal network.
- **Volumes:** Lists all mounted volumes.

Use the filter on top of each list to search for single ports or volumes.

Networking

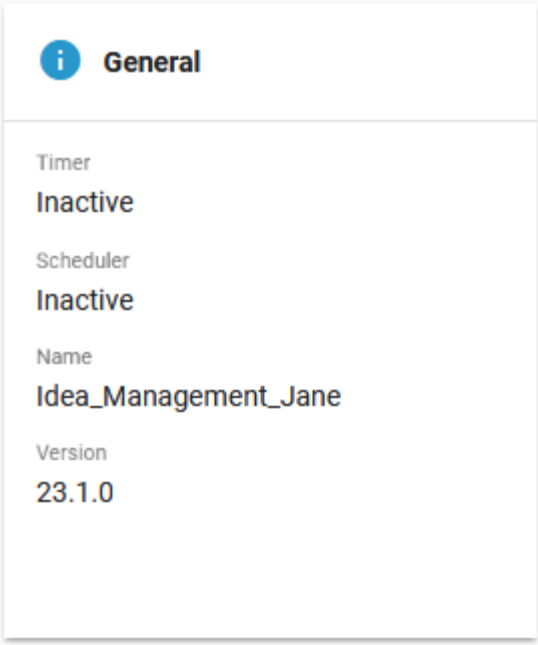


Tab **Networking** gives you an overview on the details of the service mesh.

Use the filter to search for a port name.

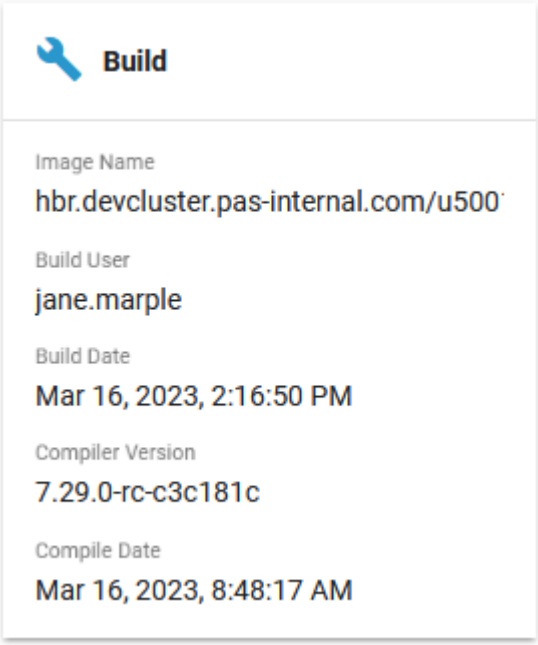
Details

On top of the **Details** section, you can find the option **Delete Service** (refer to **Deleting a Service** below for further information). The boxes **General**, **Build** and **Deployment** contain read-only information.



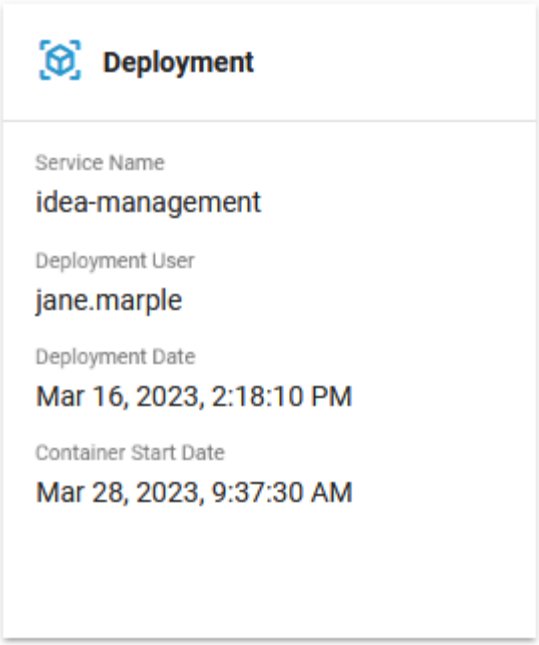
The **General** details contain common information about the compiled .rep file:

Timer	Shows whether a timer is enabled or not.
Scheduler	Shows whether a scheduler is enabled or not.
Name	Name of the compiled service.
Version	Version of the compiled service.



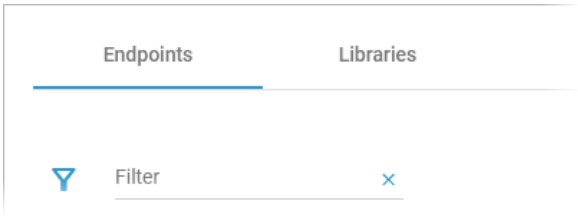
The **Build** details contain information about the workload:

Image Name	Name of the image in the Docker registry.
Build User	Username of the user that triggered the build process.
Build Date	Build date and time of the service repository.
Compiler Version	Version of the compiler the service has been compiled with.
Compile Date	Timestamp of the compilation of the service.



The **Deployment** details contain information about the deployment:

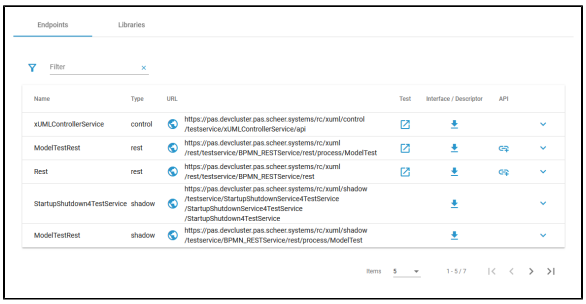
Service Name	Name of the xUML service.
Deployment User	Username of the user that triggered the deployment process.
Deployment Date	Creation date and time of the container.
Container Start Date	Date and time of the last (re-)start of the container.



Below the three sections that contain read-only information, you can find the two tabs **Endpoints** and **Libraries** (see below for details).

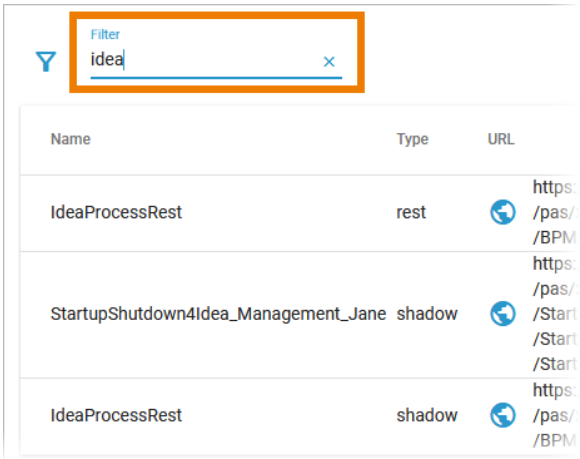
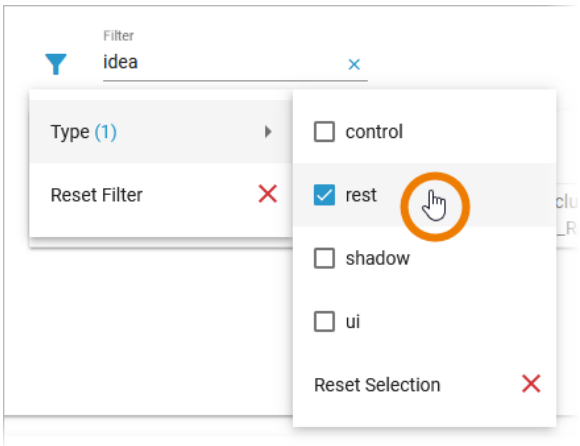
Endpoints

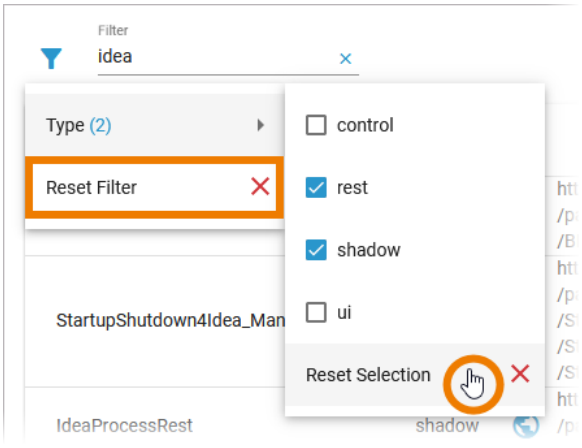
In tab **Endpoints** you can find the necessary information regarding the API endpoints of this service:



Column	Description	Possible Values
Name	Name of the registered endpoint.	Any string.
Type	Type of the registered endpoint.	• control • rest • shadow • soap • ui

URL	• Click the URL to copy the secured endpoint to the clipboard. • Click to display the URL of the internal endpoint . Click the URL to copy it to the clipboard.	Any URL.
Test	Click **Open** to switch to the interface that allows you to test the application/API. The test interface is available on running services only. The PAS platform features an xUML Runtime API for each service. You can use the interface to obtain information on the states of the service's state machines in general, and to trigger state transitions. Refer to xUML Runtime API Reference for a comprehensive list of all available requests.	-
Interface /Descriptor	Click **Download** to download the description (OpenAPI/WSDL) of the service interface. Click **Copy to clipboard** to copy the private descriptor URL.	-
API	Click **Import** to import the API to **Scheer PAS** *API Management*. A wizard will support you in creating the API in API Management. Refer to Creating an API in the API Management Guide for details.	-

	Use the filter field to search for a specific endpoint. The content of the filter field is applied to the columns **Name** and **Type**.
	Click **Extended filter** to display the extended filter options: • **Type** • **Reset Filter** If a filter is applied, the extended filter changes to .



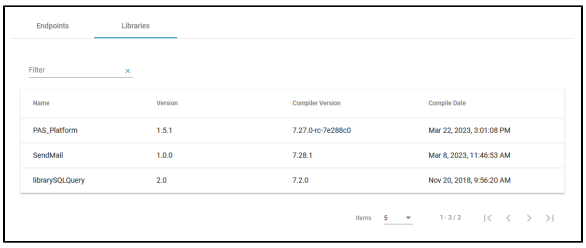
In the main filter window, you can reset all selected filters.

Click ✕ **Reset Filter**.

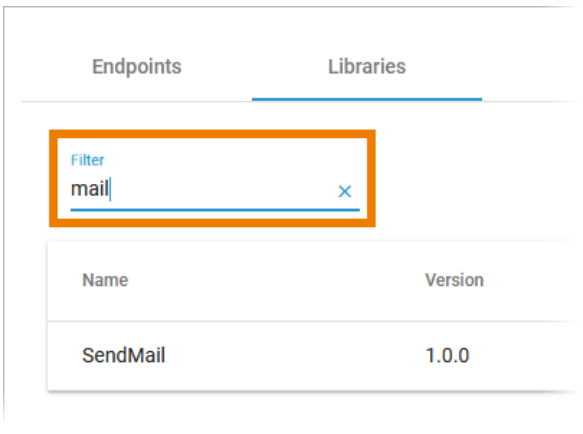
In the filter option window, you can also reset the selection.

Libraries

In tab **Libraries** you can find a list of all libraries that are used in this service:



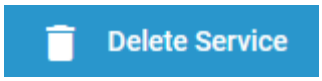
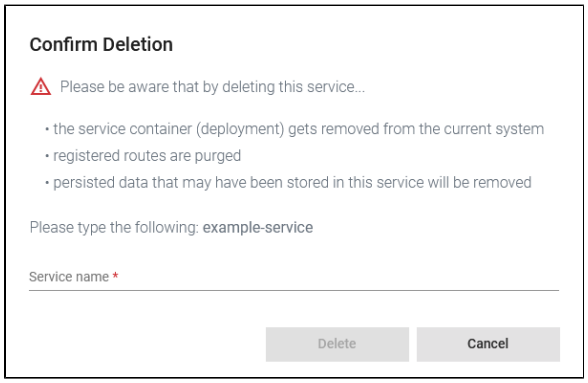
Column	Description
Name	Name of the library.
Version	Version of the library.
Compiler Version	Version of the compiler the library has been compiled with.
Compile Date	Timestamp of the compilation of the library.

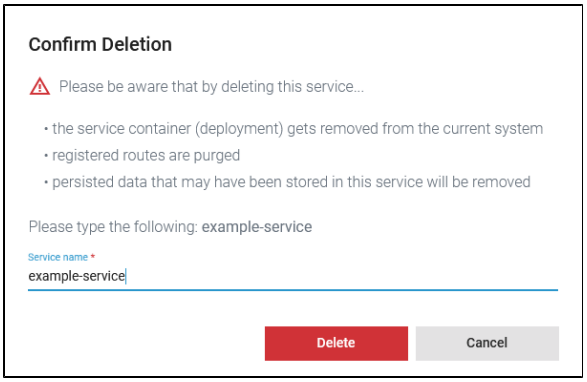


Use the filter field to search for a specific library.

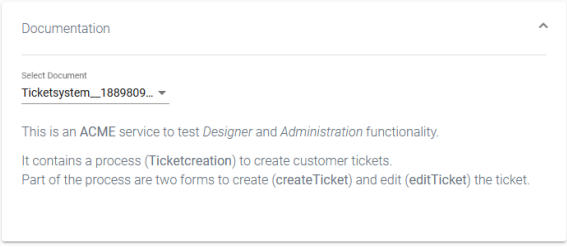
The content of the filter field is applied to the column **Name** only.

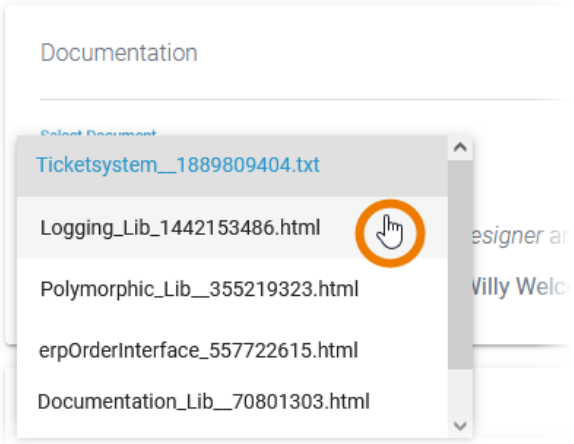
Deleting a Service

	If you want to delete a containerized xUML service, click **Delete Service** on top of the **Details** section.
	Please note, that the deletion of a service has several consequences: • **The service container (deployment) will be removed from the current system.** • **The registered routes are purged.** • **Persisted data stored in this service will be removed.**

	Option **Delete** is only enabled if you insert the correct service name.

Documentation

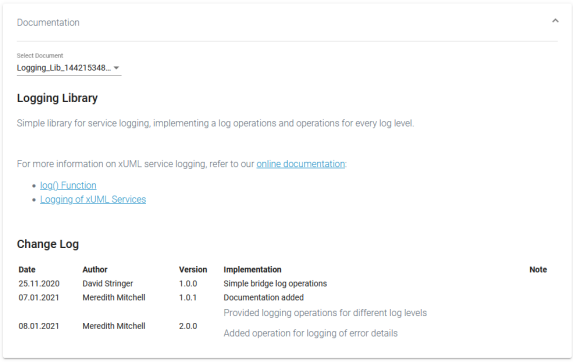
	Open the **Documentation** section to display the documentation of the xUML service.



Use the list **Select Document** to choose the documentation you want to see.

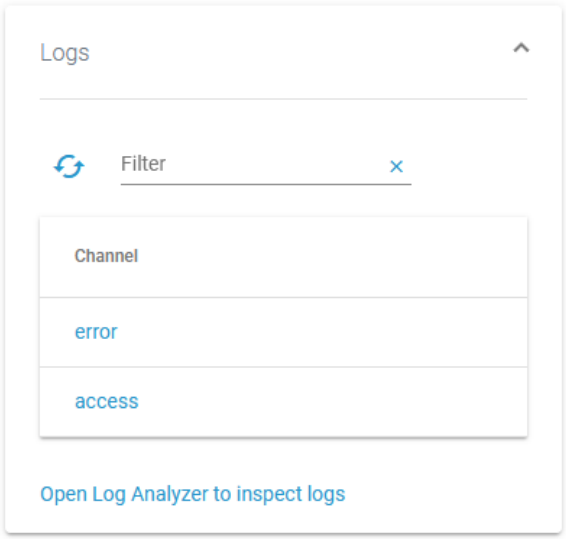
The list contains:

- The documentation of the xUML service itself (if it is a service that has been created in the Designer, you will see the content of field **Description** from the service details page).



- The documentation of the libraries that are used in the service.

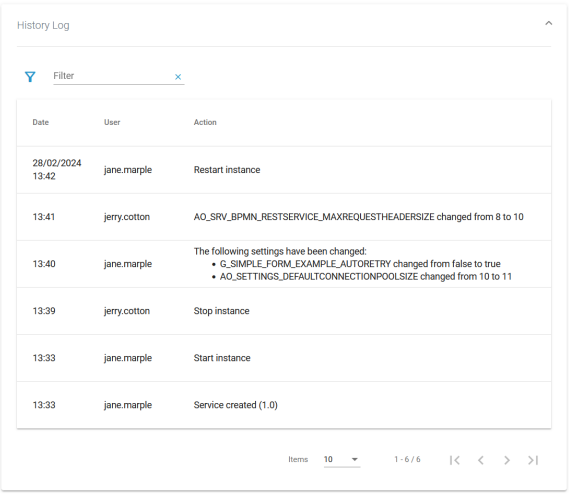
Logs



In section **Logs** you can change the log level. Go to page Changing the Log Level of a Workload for detailed information.

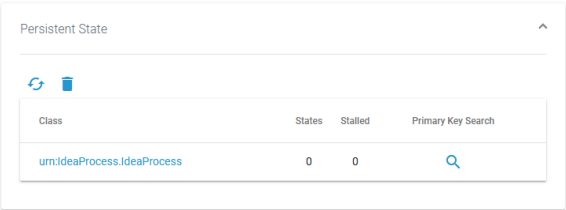
The link in section **Logs** gives you direct access to the Log Analyzer, where you can inspect the logs. Refer to Showing Logs of a Containerized xUML Service and U sing Kibana for further information.

History Log



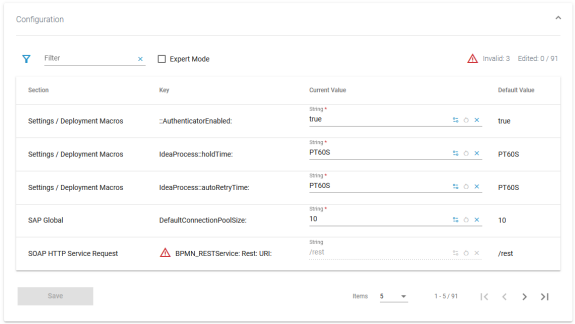
In the **His tory Log** section (**PAS 24.0**) you can inspect the service history. Refer to S howing Logs of a Containeri zed xUML Service for detailed informatio n.

Persistent State



In section **Persisten t State** yo u can manage p ersistent state objects. Refer to P ersistent States of Containeri zed xUML Services for detailed informatio n.

Configuration



In the **Configuration** section you can change the settings of an xUML service. Refer to Adapting the Configuration of Containerized xUML Services for detailed information.