

OCI – Functions: Quick Start

A short, solid yellow horizontal line.

Setup your OCI environment to start using OCI
Functions

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2 Create a Virtual Cloud Network

In this scenario I create a dedicated VCN because my function doesn't need to communicate with my other applications.

This VCN will host two components:

- An OCI instance (Virtual Machine) that will be used to build my applications
- My OCI Functions

Start VCN Wizard

- Networking > Virtual Cloud Network
- Select your hosting compartment (here Sys_Functions)

Start VCN Wizard

☒ Create VCN with Internet Connectivity

☐ Add Internet Connectivity and Site-to-Site VPN to a VCN

Creates a VCN with a public subnet that can be reached from the internet. Also creates a private subnet that can connect to the internet through a NAT gateway, and also privately connect to the Oracle Services Network.

Includes: VCN, public subnet, private subnet, internet gateway (IG), NAT gateway (NAT), service gateway (SG).

Start VCN Wizard

[Cancel](#)

Configuration

Basic information

VCN name ⓘ

VCN_Functions

Compartment ⓘ

Sys_Functions



oraseemeaocids3 (root)/Sys_Functions

Configure VCN

VCN IPv4 CIDR block ⓘ

10.0.0.0/16

If you plan to peer this VCN with another VCN, the VCNs must not have overlapping CIDR blocks. [Learn more.](#)

IPv6 prefixes *Optional*

☐ Enable IPv6 in this VCN

DNS resolution

☒ Use DNS hostnames in this VCN

Required for instance hostname assignment if you plan to use VCN DNS or a third-party DNS. This choice cannot be changed after the VCN is created. [Learn more.](#)

Configure public subnet

IP address type

IPv4 CIDR block



IPv4 CIDR block

10.0.0.0/24



Example: 172.16.0.0/16.

(Maximum number of items added)

+ Another IP address type

Configure private subnet

IP address type

IPv4 CIDR block



IPv4 CIDR block

10.0.1.0/24



Example: 172.16.0.0/16.

(Maximum number of items added)

+ Another IP address type

3 Create the building instance

Start compute instance creation

- Compute > Instances
- Select your hosting compartment (here Sys_Functions)
- Use an Oracle Linux 8 image
- You can select any shape available
- Connect the instance to the public subnet of the VCN created previously

Create compute instance

Create an instance to deploy and run applications, or save as a reusable Terraform stack for creating an instance with Resource Manager.

Name
Inst_Func_Build

Create in compartment
Sys_Functions

oraseemeacids3 (root)/Sys_Functions

Placement

The availability domain helps determine which shapes are available.

Availability domain

AD 1
CwMW:EU-PARIS-1-AD-1 ✓

Show advanced options

Security

Shielded instance: Disabled

Image and shape

A [shape](#) is a template that determines the number of CPUs, amount of memory, and other resources allocated to an instance. The image is the operating system that runs on top of the shape.

Image

ORACLE Linux
Oracle Linux 8
Image build: 2023.01.31-3

Change image

Shape

AMD
VM.Standard.E4.Flex
Virtual machine, 1 core OCPU, 16 GB memory, 1 Gbps network bandwidth

Change shape

Networking

[Collapse](#)

[Networking](#) is how your instance connects to the internet and other resources in the Console. To make sure you can [connect to your instance](#), assign a public IP address to the instance.

Primary network

☒ Select existing virtual cloud network ☐ Create new virtual cloud network ☐ Enter subnet OCID

Virtual cloud network in **Sys_Functions** ([Change compartment](#))

VCN_Functions

Subnet

An IP address from a public subnet and an [internet gateway](#) on the VCN are required to make this instance accessible from the internet.

☒ Select existing subnet ☐ Create new public subnet

Subnet in **Sys_Functions** ⓘ ([Change compartment](#))

public subnet-VCN_Functions (regional)

Public IPv4 address

☒ Assign a public IPv4 address ☐ Do not assign a public IPv4 address



If you're not sure whether you need a public IP address, you can always assign one later.

[Show advanced options](#)

Add SSH keys

Generate an [SSH key pair](#) to connect to the instance using a Secure Shell (SSH) connection, or upload a public key that you already have.

☐ Generate a key pair for me ☒ Upload public key files (.pub) ☐ Paste public keys ☐ No SSH keys

SSH public keys

Drop .pub files here. [Browse](#)

MyKey.pub x

Boot volume

A [boot volume](#) is a detachable device that contains the image used to boot the compute instance.

☐ Specify a custom boot volume size

[Volume performance](#) varies with volume size. Default boot volume size: 46.6 GB. When you specify a custom boot volume size, service limits apply.

☐ Use in-transit encryption

[Encrypts data](#) in transit between the instance, the boot volume, and the block volumes.

☐ Encrypt this volume with a key that you manage

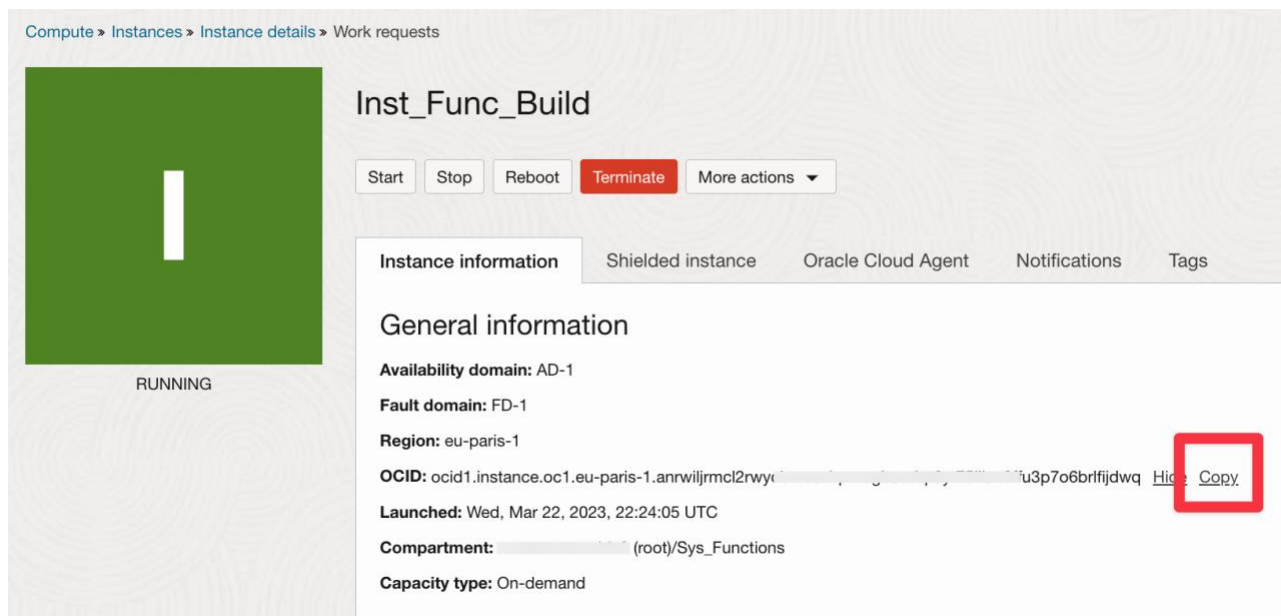
By default, Oracle manages the keys that encrypt this volume, but you can choose a key from a vault that you have access to if you want greater control over the key's lifecycle and how it's used. [How do I manage my own encryption keys?](#)

4 Create a Dynamic Group

Create a new dynamic group that includes the compute instance.

If you don't create a dynamic group and the appropriate policy, you must then create an API-key attached to your user account and configure your compute instance using "oci setup config" command.

4.1 Get Instance OCID



Compute > Instances > Instance details > Work requests

Inst_Func_Build

Start Stop Reboot **Terminate** More actions ▼

Instance information | Shielded instance | Oracle Cloud Agent | Notifications | Tags

General information

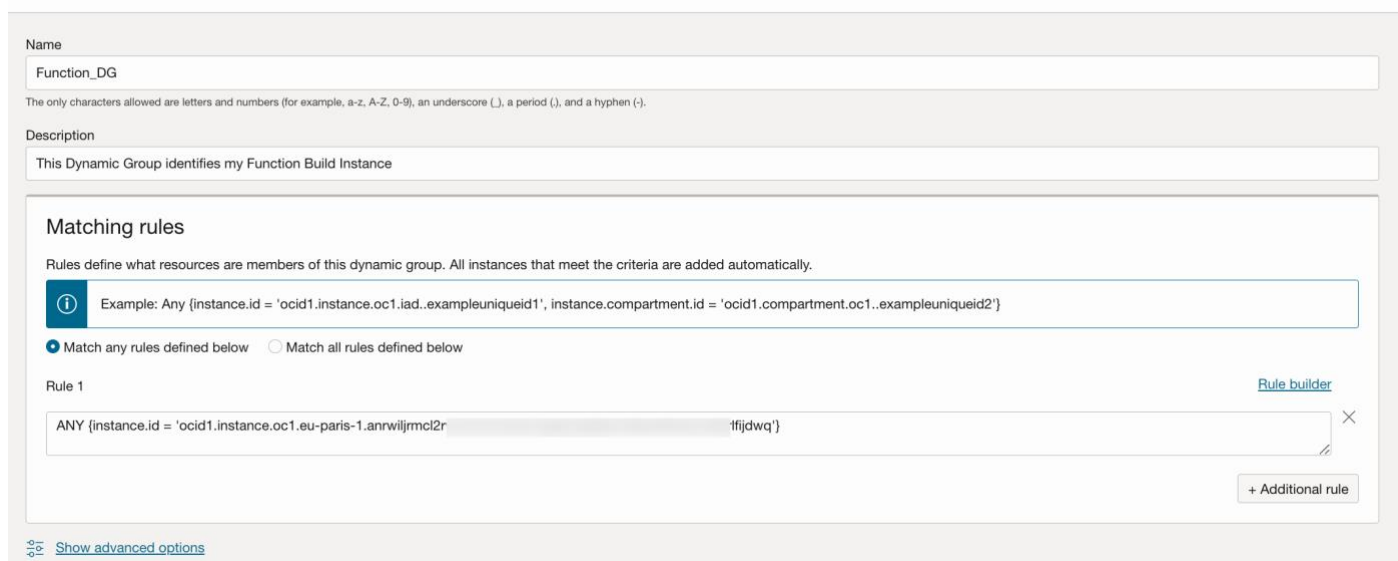
Availability domain: AD-1
Fault domain: FD-1
Region: eu-paris-1
OCID: ocid1.instance.oc1.eu-paris-1.anrwiljrmcl2rwy...u3p7o6brlfjdwq [Hide](#) [Copy](#)
Launched: Wed, Mar 22, 2023, 22:24:05 UTC
Compartment: (root)/Sys_Functions
Capacity type: On-demand

4.2 Create a Dynamic Group

- Identity & Security > Identity > Dynamic Groups
- Add the following rule **using the OCID of your compute instance**

```
ANY {instance.id = 'ocid1.instance.oc1.eu-paris-1.anxxxxxxxxxxxxxxxxxxwq'}
```

Create dynamic group



Name
Function_DG

Description
This Dynamic Group identifies my Function Build Instance

Matching rules

Rules define what resources are members of this dynamic group. All instances that meet the criteria are added automatically.

Example: Any {instance.id = 'ocid1.instance.oc1.iad..exampleuniqueid1', instance.compartment.id = 'ocid1.compartment.oc1..exampleuniqueid2'}

☒ Match any rules defined below ☐ Match all rules defined below

Rule 1

ANY {instance.id = 'ocid1.instance.oc1.eu-paris-1.anrwiljrmcl2r...lfjdwq'}

[Rule builder](#)

[+ Additional rule](#)

[Show advanced options](#)

5 Create a policy

Create a policy **IN THE ROOT COMPARTMENT** to give the new dynamic group access to function resources, network resources, and Oracle Cloud Infrastructure Registry (OCIR).

- Identity & Security > Identity > Policies

Allow dynamic-group **Function_DG** to manage functions-family in compartment **Sys_Functions**
Allow dynamic-group **Function_DG** to use virtual-network-family in compartment **Sys_Functions**
Allow dynamic-group **Function_DG** to read repos in tenancy

Create Policy

Name

Policy_Function

No spaces. Only letters, numerals, hyphens, periods, or underscores.

Description

Give the function dynamic group access to function resources, network resources, and Oracle Cloud Infrastructure Registry

Compartment

(root)

Policy Builder

Show manual editor



Allow dynamic-group Function_DG to manage functions-family in compartment Sys_Functions
Allow dynamic-group Function_DG to use virtual-network-family in compartment Sys_Functions
Allow dynamic-group Function_DG to read repos in tenancy

Example: Allow group [group_name] to [verb] [resource-type] in compartment [compartment_name] where [condition]



[Show advanced options](#)

6 Configure your Instance for building functions

These steps will set up your instance with all the components required to build your Dev environment.

Connect to your instance using ssh and its public IP.

6.1 Install components

You can do it manually running commands below or you can run the install script running :

Automatic Installation :

```
curl https://gist.githubusercontent.com/Olygo/814a4ee6451ac4ac821bcd55641e58a5/raw | sh
```

Manual installation:

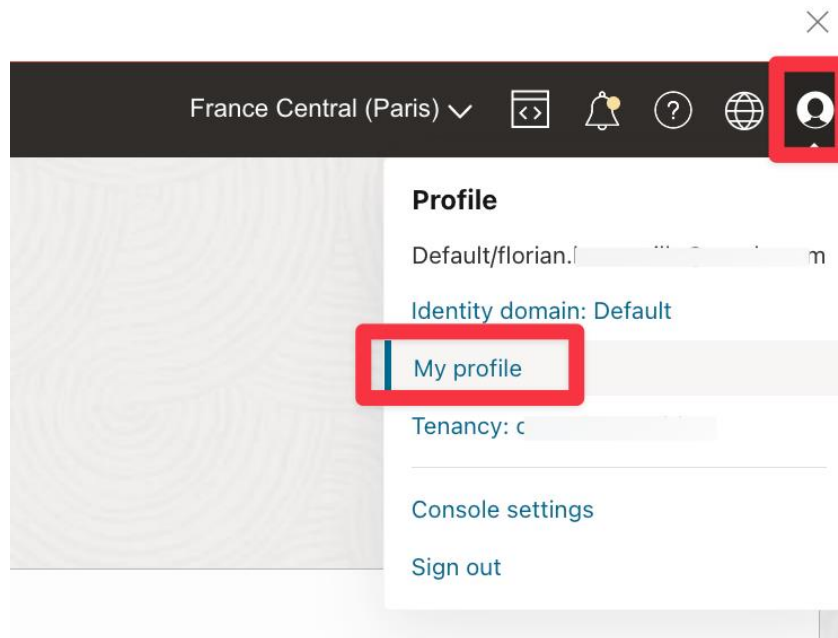
```
sudo dnf update -y
sudo dnf install git -y
git clone https://github.com/Olygo/OCI-FN_TagCompute_FF.git
python3 -m pip install pip --upgrade --user
python3 -m pip install wheel --upgrade --user
python3 -m pip install oci --upgrade --user
python3 -m pip show oci --version | grep Version
python3 -m pip install oci-cli --upgrade --user
python3 -m pip show oci-cli --version | grep Version
sudo dnf config-manager --add-repo=https://download.docker.com/linux/centos/docker-ce.repo -y
sudo dnf install -y docker-ce --nobest -y
docker version
sudo systemctl enable docker.service
sudo systemctl start docker.service
sudo usermod -a -G docker opc
curl -LSs https://raw.githubusercontent.com/fnproject/cli/master/install | sh
fn version
shutdown -r now
```

7 Create an Auth Token

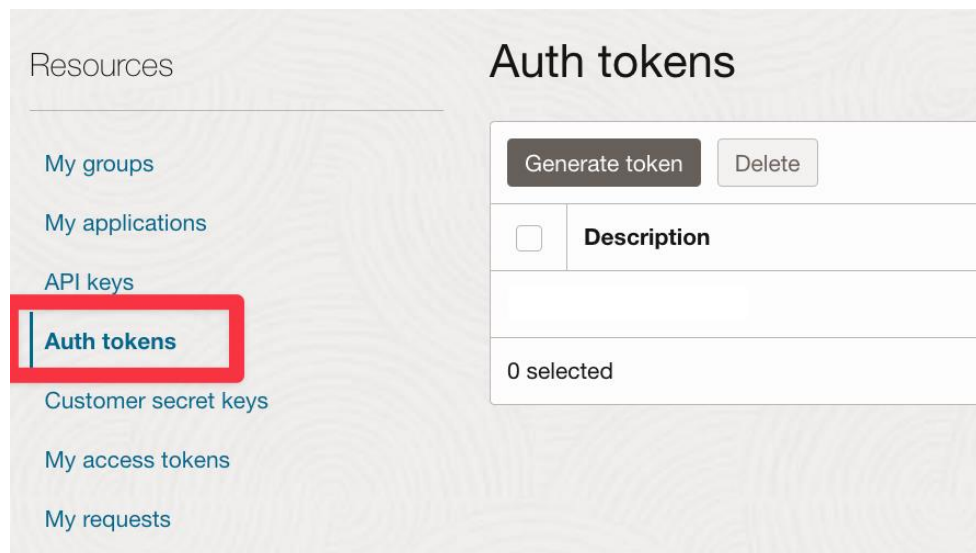
The Auth Token will be used to connect to your Container Registry (OCIR) that will host your docker container. This token will be required later for the docker login command.

7.1 Go to your account profile

Click Profile (top right) > My profile



7.2 Generate a new Auth Token



Generate token



Generated token

Copy this token for your records. It will not be shown again.

3EUGbk[yU-A(ASCu8tr+ [Hide](#) [Copy](#)

Save your auth token in your notes or personal vault for later use.

8 Create and deploy your function application

8.1 Create application from the OCI Console

- Developer Services > Functions > Applications

Create application

Name

My_Functions

VCN in **Sys_Functions** [\(Change compartment\)](#)

VCN_Functions

subnets in **Sys_Functions** [\(Change compartment\)](#)

public subnet-VCN_Functions (Regional) ✕

My_Functions

[Move application](#) [Add tags](#) [Delete](#)

Application information

Tags

General information

OCID: ...g4czg2fq [Show](#) [Copy](#)

Compartment: Sys_Functions

Logging policy: None

Trace name: None

Created: Wed, Mar 22, 2023, 23:34:56 UTC

Last updated: Wed, Mar 22, 2023, 23:34:56 UTC

Signature verification: Disabled

Network information

Subnets: [public subnet-VCN_Functions](#)

Network security groups: None [Add](#)

Getting started

Cloud Shell setup

Quickly create, deploy and invoke functions using Cloud Shell

Local setup

Set up a development machine to create, deploy and invoke functions ✓

8.2 Configure your compute instance using “Local setup”

Steps 1 & 2 are not required here as we have already downloaded our function's code through git clone above.

Jump into the function folder downloaded:

```
cd ./OCI-FN_TagCompute_FF
```

Now run function setup commands from the **Local Setup** section:

Step 3: Context name can be anything :

```
#!/\ DO NOT USE: --provider oracle
      USE      : --provider oracle-ip
```

oracle: authenticates a user with a local oci-cli config file

oracle-ip: authenticates an instance with instance_principals (dynamic-groups)

3 Create a context for this compartment and select it for use

```
fn create context Sys_Functions --provider oracle
fn use context Sys_Functions
```

Step 4: Compartment hosting your function, API endpoint reflects your OCI region :

4 Update the context with the compartment ID and the Oracle Functions API URL

```
fn update context oracle.compartment-id ocid1.compartment.oc1..aaaaaaaabnvnka5sdptfme2yjopk
fn update context api-url https://functions.eu-paris-1.oraclecloud.com
```

Step 5: Choose a name for the container registry repository (OCIR), it can be anything in lower cases without spaces : [repo-name-prefix]

5 Provide a unique repository name prefix to distinguish your function images from other people's. namespace>/jdoe/hello:0.0.1'

```
fn update context registry cdg.ocir.io/ε ' ' 'a/[repo-name-prefix]
```

Step 6: log into OCIR using docker login and your **Auth Token** created previously :

6 Log into the Registry using the Auth Token as your password

```
docker login -u 'lea/florian.' ' ' cdg.ocir.io
```

Step 7: Push the local function code to your OCI Application and OCIR repository:

Deploy your function

```
fn deploy --app My_Functions
```

8.3 Output from your compute instance :

```
[opc@inst-func-build-142296 OCI-FN_TagCompute_DT]$ fn create context Sys_Functions --provider oracle-ip
Successfully created context: Sys_Functions
[opc@inst-func-build-142296 OCI-FN_TagCompute_DT]$ fn use context Sys_Functions
Now using context: Sys_Functions
[opc@inst-func-build-142296 OCI-FN_TagCompute_DT]$ fn update context oracle.compartment-id ocid1.compartment.oc1..aaaaaaaabnvnka5s
Current context updated oracle.compartment-id with ocid1.compartment.oc1..aaaaaaaabnvnka5s
[opc@inst-func-build-142296 OCI-FN_TagCompute_DT]$ fn update context api-url https://functions.eu-paris-1.oraclecloud.com
Current context updated api-url with https://functions.eu-paris-1.oraclecloud.com
[opc@inst-func-build-142296 OCI-FN_TagCompute_DT]$ fn update context registry cdg.ocir.io/a'^_`^a/demo-repo
Current context updated registry with cdg.ocir.io/a'^_`^a/demo-repo
[opc@inst-func-build-142296 OCI-FN_TagCompute_DT]$ docker login -u 'a'^_`^a/florian' cdg.ocir.io
Password:
WARNING! Your password will be stored unencrypted in /home/opc/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
[opc@inst-func-build-142296 OCI-FN_TagCompute_DT]$ fn deploy --app My_Functions
Deploying oci-fn_tagcompute_dt to app: My_Functions
Bumped to version 0.0.1
Using Container engine docker
Building image cdg.ocir.io/a'^_`^a/demo-repo/oci-fn_tagcompute_dt:0.0.1 .....
Parts: [cdg.ocir.io a'^_`^a/demo-repo oci-fn_tagcompute_dt:0.0.1]
Using Container engine docker to push
Pushing cdg.ocir.io/a'^_`^a/demo-repo/oci-fn_tagcompute_dt:0.0.1 to docker registry...The push refers to repository [cdg.ocir.io/oci-fn_tagcompute_dt]
753aa253c2e1: Pushed
1466c8241698: Pushed
eb5011488c70: Pushed
64297c36ab1d: Pushed
0059976a0ea6: Pushed
e76ab7648bea: Pushed
f46abc7ec396: Pushed
0.0.1: digest: sha256:4bbf2fff28d8da9df79e70..... size: 1782
Updating function oci-fn_tagcompute_dt using image cdg.ocir.io/a'^_`^a/demo-repo/oci-fn_tagcompute_dt:0.0.1...
Successfully created function: oci-fn_tagcompute_dt with cdg.ocir.io/a'^_`^a/demo-repo/oci-fn_tagcompute_dt:0.0.1
```


8.4 Output from your OCI console :

Your function has been published to your Application:

Functions > Applications > My_Functions

A

ACTIVE

Move application

Add tags

Delete

Application information

Tags

General information

OCID: ...g4czg2fq Show Copy

Compartment: Sys_Functions

Logging policy: None

Trace name: None

Created: Wed, Mar 22, 2023, 23:34:56 UTC

Last updated: Wed, Mar 22, 2023, 23:34:56 UTC

Signature verification: Disabled

Network information

Subnets: public subnet-VCN_Functions

Network security groups: None Add

Resources

Getting started

Functions

Configuration

Signature verification

Metrics

Logs

Functions

Create function

Name	Image	Image digest	Invoke endpoint
<a>oci-fn_tagcompute_dt	cdg.ocir.io/a: /demo-repo/oci-fn_tagcompute_dt:0.0.1	sha256:4bbf279bc4ffbcba	https://vc.functions.eu-paris-1.oraclecloud.com/20181201/functions/ocid1.fnfunc.oc1.eu-paris-1.aaaaaaame.cxuvmxvzyzbuyq/actions/invoke

Your container function has been stored into your container registry:

Container Registry in (root) Compartment

Create repository

1 (root)

demo-repo/oci-fn_tagcompute_dt

0.0.1

0.0.1

Full path: a: a/demo-repo/oci-fn_tagcompute_dt:0.0.1

Pushed by: florian

OCID: ...yqk6ist5yx7s: Show Copy

Digest: ...14df8c32c3: Show Copy

Repository: demo-repo/oci-fn_tagcompute_dt

Size (MB): 89.46

Namespace: a: a

Total pulls: 0

Date created: 30 minutes ago

Last pull: Never

By default, the repository is created in the root compartment, you can move it to another compartment using: Action > Move compartment.