

CloudSME Platform

Software Deployment Guide

Version 2.0.13.0



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Glossary

CBP	CloudBroker Platform
Deployment	The process of installation of a certain software package onto a cloud resource
OS	Operating System
Deployment	a) A process of installation of a certain software package onto a cloud resource and b) An existing image with a certain software package

About This Guide

The “Software Deployment Guide” has been designed to assist you during the process of deploying of your software product in the CloudSME Platform (hereinafter referred to as CloudBroker Platform). The guide consists of three chapters, i.e.

- Software Preparation
- Software Deployment
- Software Price Setting

You will learn how to successfully create your software, add an executable and installation package, then actually deploy the software as well as set prices for its usage.

The software deployment process is described for the autodeployment, as well as for the existing software image registration.

Each chapter consists of the detailed description of the subject matter, visualized with screenshots.

Introduction

There are two ways of deploying your software: through autodeployment (when a software package is automatically installed onto the base deployment, i.e. the image with a clean operating system installed) or through the manual registration of an already existing image with your software by pointing the Platform to it.

If you would like to use the autodeployment procedure for your software (i.e. you do not have an existing image with your software product installed), just follow the guide step by step. For manual registration, you will only require several steps out of this guide: Software Preparation → Registration of Existing Software Image → Software Activation.

Software Preparation

If you would like to offer your software for usage on cloud resources through the CloudBroker Platform, first it needs to be prepared for deployment and then actually deployed.

We shall start with the software preparation.

Creating New Software

Your first step in terms of software preparation is creation of your software product. To create a new software product, either click on the “Software” tab in the navigation menu or follow a “Software” link in the dashboard. Once the Software List page is opened, click on the “New” button.

Please see the figure below:



Figure 1.1: Software List page

You will see a wizard for creating new software. The following mandatory fields need to be filled in on the “Entry Options” sub-sub-tab:

- Product by specifying the name of you product
- Version by specifying the version number of your product
- “Visibility” (set the visibility option for your software:
 - “private” so that your software will be accessible for the administrators in your organization only
 - “protected” so that your software will be accessible for all users in your organization
 - “public” so that your software will be accessible for all users within the CBP)

Please see the figure below:

Software 

1. Create software 2. Create executable 3. Deploy software 4. Activate software

Entries marked with * are required.

 **Entry Options**  **Expert Options**

Product *
 

Version *
 

Visibility
 

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Figure 1.2: Create New Software step. Entry Options sub-sub-tab

Once you have finished filling out the “Entry Options” sub-sub-tab, click on the “Expert Options” to find some additional software parameters, i.e.:

- “Icon” (browse a file that you would like to use as your software product icon)
- “Website” (provide the website for your software product in the following format: `http://www.example.com`)
- “Documentation link” (provide the link on your software product documentation in the following format: `http://www.example.com`)
- “Use NFS” (select this option if your software uses Network File System for multi-node instance running)
- “Limited Instance Types” (select this option if to you want to specify the certain instance types that may be used with your software product)
- “Description” (add the description of your software here)

Please see the figure below:

Software

1. Create software 2. Create executable 3. Deploy software 4. Activate software

Entries marked with * are required.

Entry Options **Expert Options**

Icon
 jpegicon.jpg

Website (enter in format: http://www.example.com)

Documentation link (enter in format: http://www.example.com)

Use NFS

Limited instance types

Description (some HTML tags and attributes can be used)

Save software and proceed to executable creation

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Figure 1.3: Create New Software step. Expert Options sub-sub-tab

After filling out the needed fields on the “Create software” step, click on the “Save software and proceed to executable creation” button. You will be redirected then to the “Create executable” step of the wizard, where you can add an executable for your software.

Adding New Executable

Now you need to add the executable, i.e. a binary to your software product.

Once “Save software and proceed to executable creation” button has been pressed, you will see a form for adding a new executable. The following mandatory fields need to be filled in on the “Entry Options” tab:

- “Binary” by specifying your executable

Executables

1. Create software 2. Create executable 3. Deploy software 4. Activate software

Entries marked with * are required.

Entry Options Expert Options

Software: Hello World 1.0

Binary *
hello_world.sh

Save executable and deploy software or Save this executable and create another one

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Figure 1.4: Create Executable step. Entry Options sub-sub-tab

Once you have finished filling out the “Entry Options” sub-sub-tab, click on the “Expert Options” and see the following optional executable settings:

- “Node file format” (for parallel runs, select a tool for the corresponding host)
- “Node file name” (for parallel runs, select a name for the machine file, default is “nodes.txt”)
- “Includes distribution” (select this option if your executable already calls the corresponding commands for distribution internally, such as ddickick.x, mpdboot and/or mpirun. Typically, your executable is a shell script then)
- “Argument string template” (provide a regular expression to filter possible arguments for the binary)
- “Default argument string” (provide the default argument string that shall always be used for the jobs with this software regardless the user-specified argument string)
- “Argument string help” (provide additional information as to possible arguments for the binary)
- “Produces stderr” (select this option if even successful job runs produce stderr output)
- “Multi-threaded” (select this option for the executable to use all machine instance cores available)
- “Description” (add the description of your executable here).

Please see the figure below:

Executables

1. Create software

2. Create executable

3. Deploy software

4. Activate software

Entries marked with * are required.

Entry Options Expert Options

Multinodes execution

Node file format
none

Node file name

Includes distribution

Argument string

Argument string template

Default argument string

Argument string help (some HTML tags and attributes can be used)

Execution behaviour

Produces stderr

Multi-threaded

Description (some HTML tags and attributes can be used)

Save executable and deploy software or Save this executable and create another one

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Figure 1.5: Create Executable step. Expert Options sub-sub-tab

After filling out the executable creation form, you can either click on the “Save executable and deploy software” button or “Save this executable and create another one” button. The former will take you to the next software deployment step while the latter will allow you to create an additional executable for the software. Once the executable is saved, you will be redirected to the “Deploy software” step of the wizard, where you can actually deploy your software.

Another way to add an executable is to navigate to the “Executables” sub-tab under the “Software” tab in the navigation menu and then click on the “New” button there.

Please see the figure below:



Figure 1.6: Executables List page

Executables can also be added by the following means:

- a) On the Software List select the “Add Executable” option from the “Actions” dropdown for your software entry, or
- b) On the Software Details page select the “Add Executable” option from the “Actions” dropdown that is located on the bottom of the page.

Once the executable is saved, you will be redirected to the Executable Details page, where you can view all information on your executable. You can also see it on the Executables List page.

Note: your newly added executable has its “active” parameter set to false, i.e. you cannot run jobs using it yet. Once your software is activated, the “active” parameter of the executable will be switched to “true”.

Please see the figure below:

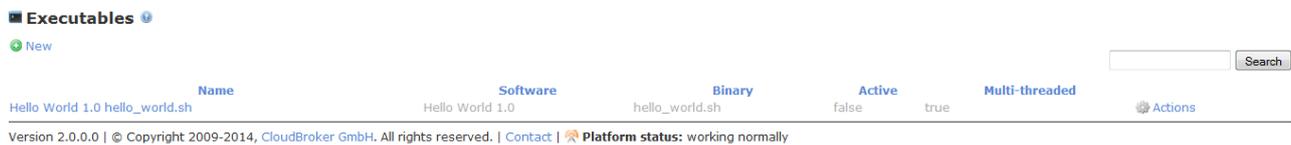


Figure 1.7: Executables List page

Deploying Software Through Autodeployment

Preparing a New Deployment

Please note that these further steps of this chapter are only relevant for you if you have decided to use autodeployment to deploy your software product and if you have your own cloud resource already registered within the Platform, using which you will be performing the autodeployment.

Once you have created an executable for your software, you will be redirected to the “Deploy software” step of the wizard.

You will be offered several options to proceed with the deployment. Please see the figure below:

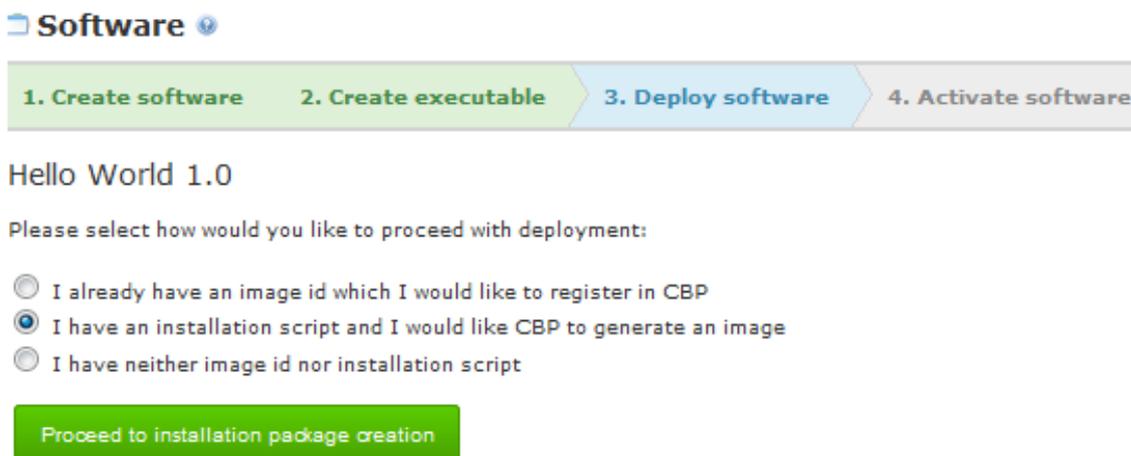


Figure 2.1: “Deploy software” step

To proceed with the deployment you will need to select one of the options:

- “I already have an image id which I would like to register in CBP” will allow you to register an existing image. Please see “Registration of Existing Software Image” chapter of this guide for details.
- “I have an installation script and I would like CBP to generate an image” will allow you to prepare a new deployment and generate an image for your software. This chapter will describe this option in details.
- “I have neither image id nor installation script”. Select this option if you are not sure how to proceed with the deployment.

This chapter will describe how to proceed if the option “I have an installation script and I would like CBP to generate an image” has been selected.

After selecting the option, press “Proceed to installation package creation” button.

Adding New Installation Package

Along with the executable, your software also requires an installation package that contains an installation script necessary for software deployment on the cloud resource.

Once you press “Proceed to installation package creation” button, you will be redirected to the “Create package” step of the wizard.

You will then see a form for adding a new installation package. The following mandatory fields need to be filled in on the “Entry Options” page:

- “Architecture” by selecting the architecture of the machine instance, on which your software shall be deployed
- “Operating system” by selecting the operating system of the machine instance, on which your software shall be deployed
- “Installation directory” by specifying the directory, where your software shall be installed on the machine instance
- “Installation script file” by browsing the script file for installing the software on the machine instance.

Please see the figure below:

Installation Packages

1. Create software 2. Create executable 3.1 Create package

Entries marked with * are required.

Entry Options Expert Options

Software: Hello World 1.0

Architecture *
x86_64

Operating system *
Ubuntu 12.04

Installation directory *
/opt/hello_world

Installation script file *
Browse... No file selected.

Save package and proceed to deployment generation

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Figure 2.2: Create New Installation Package page. Entry Options sub-sub-tab

Once you have finished filling out the “Entry Options” sub-sub-tab, click on the “Expert Options” to fill in additional necessary installation package settings:

- “Init script” (specify the script to run before each job execution with this software)
- “Software package file” (browse the software package file for installing the software on the machine instance)
- “Description” (add your installation package description here)

Please see the figure below:

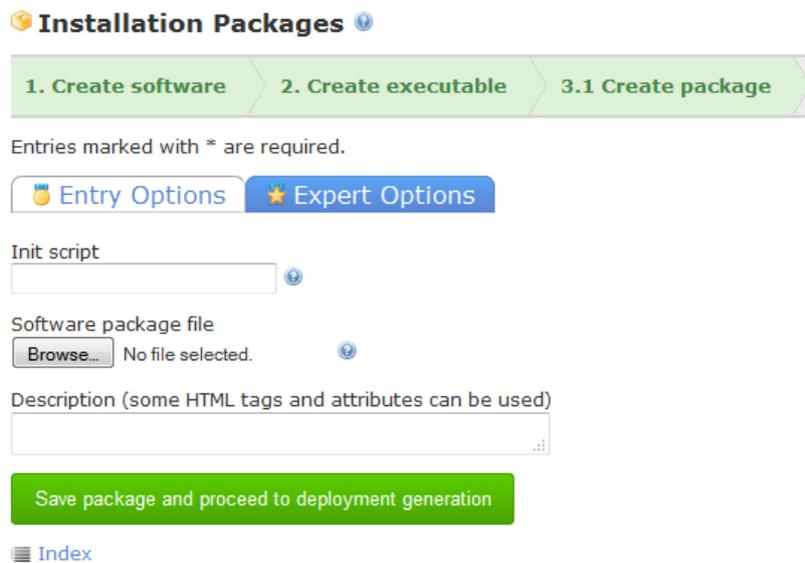


Figure 2.3: Create New Installation Package page. Expert Options sub-sub-tab

Once your installation package data are populated, press “Save package and proceed to deployment generation” button. You will be redirected to the next step of the wizard

You can also add an installation package without using the wizard. To add an installation package without the wizard, navigate to the “Installation Packages” sub-tab under the “Software” tab in the navigation menu to get to the Installation Packages List page and then click on the “New” button there.

Please see the figure below:

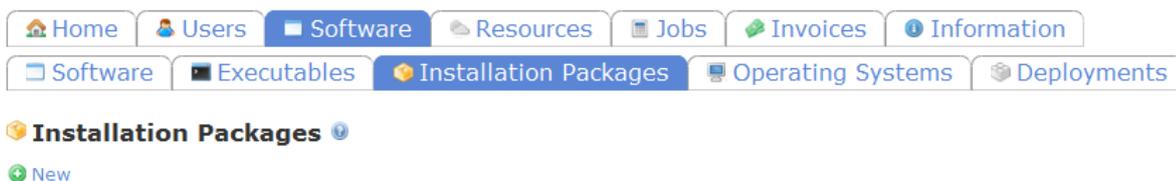


Figure 2.4: Installation Packages List page

Installation Packages can also be added by the following means:

- a) On the Software List select the “Add Installation Package” option from the “Actions” dropdown for your software entry, or
- b) On the Software Details page select the “Add Installation Package” option from the “Actions” dropdown that is located on the bottom of the page.

After filling out the installation package creation form, click on the “Save” button. Once the installation package is saved, you will be redirected to the Installation Package Details page, where you can view all information on your installation package. You can also see it on the Installation Package List page.

Please see the figure below:

Name	Software	Architecture	Operating system	Active	Actions
Hello World 1.0 i386 Ubuntu 12.04 R1	Hello World 1.0	i386	Ubuntu 12.04	true	Actions

Figure 2.5: Installation Packages List page

Deployment preparation

After software submission for deployment, the preparation and generation of the deployment shall follow.

Once you press the “Save package and proceed to deployment generation” button, you will be redirected to the “Prepare deployment” step of the wizard.

You will then see a form for preparing a new deployment. The following mandatory fields need to be filled in on the “Entry Options” page:

- “Base deployment” by selecting an already existing image, where your software will be installed using the installation package selected above (base deployment is usually an image with the clean operating system installed). To add your own base deployment, please follow the steps described under the “Registration of Existing Software Image” section
- “Resource account” by selecting a resource account where the image should get generated (please see our Resource Accounts Creation and Usage Guide for detailed information about resource accounts)
- “Instance type” by selecting the type of the machine instance that will be used for deployment generation.

Please see the figure below:

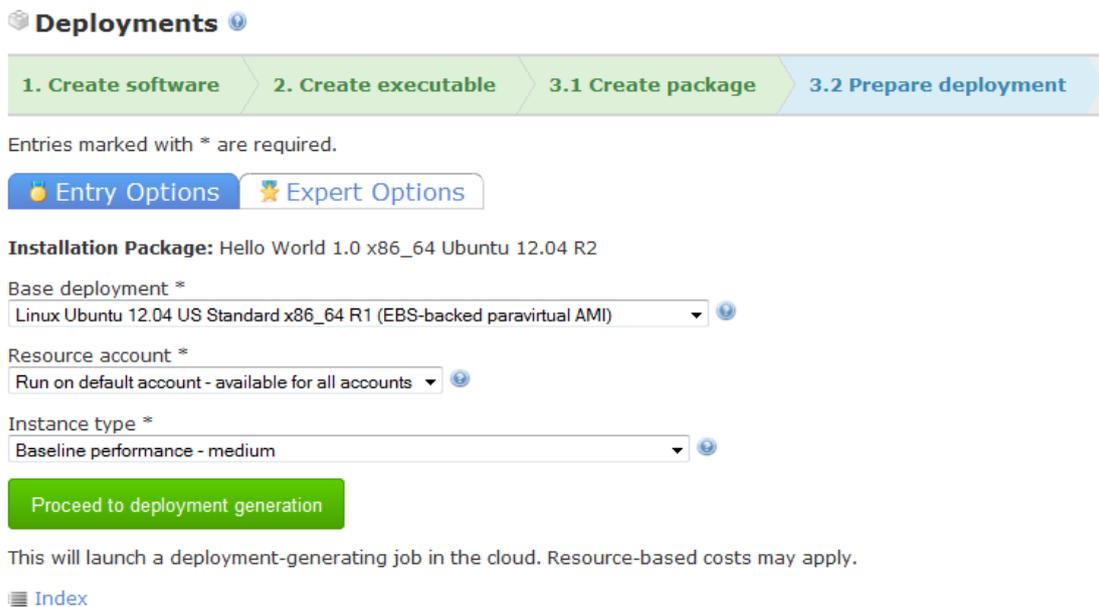


Figure 2.6: Prepare New Deployment page. Entry Options sub-sub-tab

Once you have finished filling out the “Entry Options” sub-sub-tab, click on the “Expert Options” to see optional deployment settings:

- “Description” (add the description for your deployment here)

Please see the figure below:

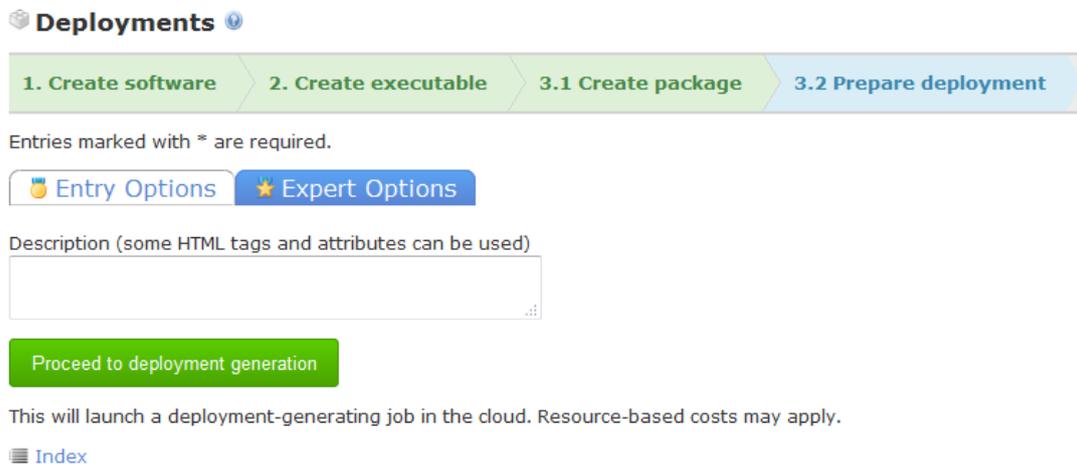


Figure 2.7: Prepare New Deployment page. Expert Options sub-sub-tab

After filling out the deployment preparation form, click on the “Proceed to deployment generation” button. You will be redirected to the step where the actual deployment will be generated.

To prepare a new deployment without the software wizard, navigate to the “Deployments” sub-tab under the “Software” tab. You will be redirected to the Deployments List page, where you need to click on the “Prepare” button to prepare a new deployment.

Please see the figure below:



Figure 2.8: Deployments List page

After filling out the deployment preparation form, click on the “Save” button. Once the deployment is saved, you will be redirected to the Deployment Details page, where you can view all information on your deployment. You can also see it on the Deployments List page having the “prepared” status.

Please see the figure below:



Figure 2.9: Deployments List page

Deployment Generation

Now that your deployment is prepared, you need to generate it.

Once you press the “Proceed to deployment generation” button, you will be redirected to the “Generate deployment” step of the wizard. Here you will see that the deployment generating job has been launched.



Figure 2.10: “Generate deployment” step

Wait until the generating job is completed. This may take a while. Your installation script will be executed during running state. The snapshot of the machine will be taken during finishing state.

Once the job is completed, you will be able to activate your deployment by pressing “Activate deployment button”. Please see the figure below:



Figure 2.11: Activating a deployment

Once you deployment is activated, you will be able to activate your software.

To generate a new deployment without using the software wizard, go to the Deployments List page, find your deployment entry and select the “Generate” option under the “Actions” dropdown menu. The system will prompt a message for you to confirm the submission of your deployment for generation. To continue, press “OK”.

Please see the figure below:



Figure 2.12: Deployments List page

Once the “Generate” option is selected, you are redirected to the Deployment Details page, where you can see that the status of your deployment has changed from “prepared” into “generating”.

Please see the figure below:



Figure 2.13: Deployments List page

The “generating” status of your deployment means that the deployment generating job has been launched. You can observe this job under the “Jobs” tab.

Please see the figure below:



Figure 2.7: Jobs List page

After the deployment generating job has successfully completed and the deployment status has changed into “generated”, it means that the deployment is then ready to be activated.

To activate your deployment, select the “Activate” option under the corresponding “Actions” dropdown menu. The system will prompt a message for you to confirm the activation of your deployment. To continue, press “OK”.

Please see the figure below:



Figure 2.14: Deployments List page

Congratulations, your deployment is now active! You are only one step away from making your software available within the platform!

Software Activation

The software activation lets you “publish” your software within the CBP according to its visibility settings (please see page 6 of the manual for details).

Once you press “Activate deployment button” on the “Generate deployment” step, you will be redirected to the “Activate software” step. On this step you just need to press “Activate software button”. Please see the figure below:

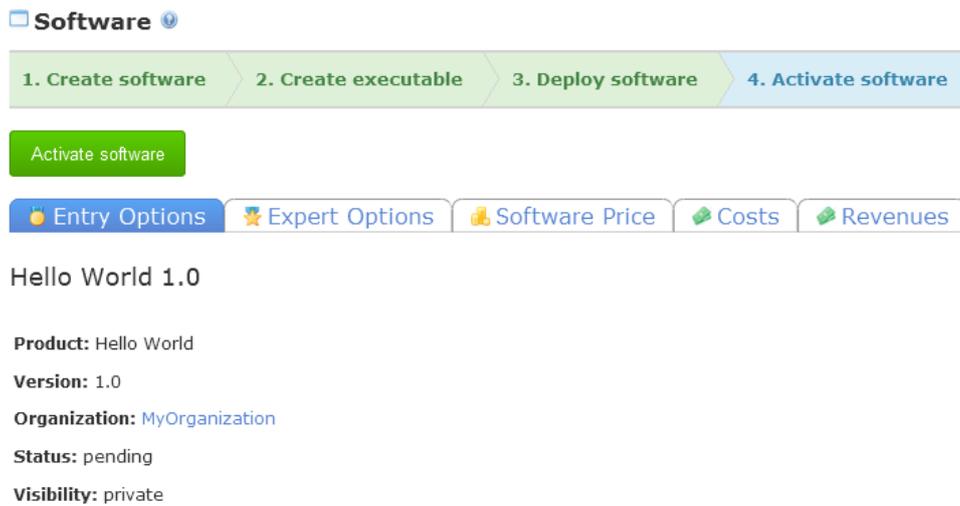


Figure 2.15: “Activate software” step

Once the “Activate software” button is pressed, your software is active and ready for use.

To activate your software without using the wizard, navigate to the “Software” tab and select the “Activate” option under the corresponding “Actions” dropdown list. The system will prompt a message for you to confirm the submission of your software for activation. To continue, press “OK”.

Please see the figure below:



Figure 2.16: Software List page

Once you click on “Activate”, the Software Details page will be displayed along with the “Software was successfully activated” notification message on the right top of the page. The status of your software shall also be changed from “pending” into “active”.

Now your software is ready to use!

Registration of Existing Software Image

Please note that these further steps are only relevant for you if you have decided to use manual registration of the existing image with your software installed on it and if you have your own cloud resource already registered within the Platform, using which you will be performing the deployment.

Once you have completed Create software and Create executable steps of the software creation wizard, you will be redirected to the “Deploy software” step. Please see the figure below:

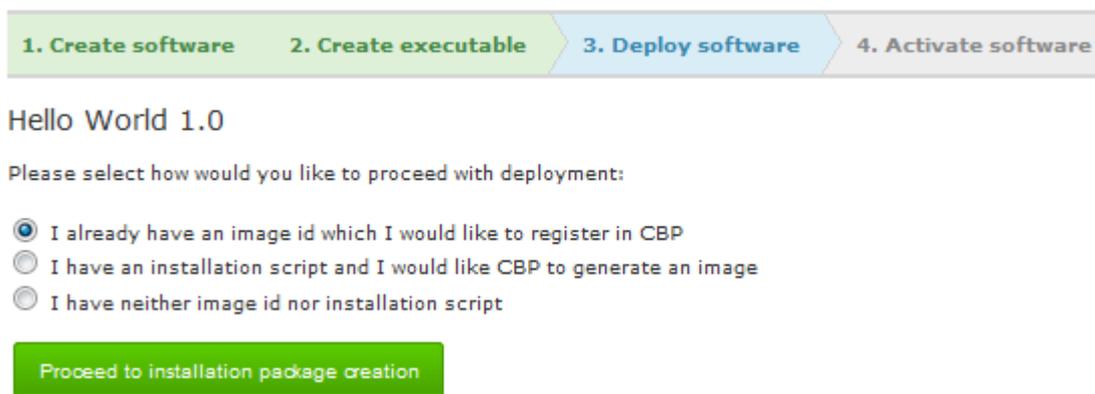


Figure 3.1: Deploy software step

To register an existing image on CBP, select “I already have an image id which I would like to register in CBP” option offered on this step and press “Proceed to image registration” button.

You will then see a form for adding a new deployment. The following mandatory fields need to be filled in on the “Entry Options” page:

- “Resource” by selecting your resource, which will be used for your deployment
- “Resource account” by selecting an account where the image should be located (please see Resource Accounts Registration and Usage Guide for details about resource accounts)
- “Deployment type” by selecting the type of your image (e.g. S3- or EBS-backed AMI for Amazon EC2 resources)
- “Region” by selecting one of available regions of your resource
- “Architecture” by selecting the architecture of your image
- “Operating System” by selecting the OS used on your image
- “Image ID” (specify the ID of your existing image)

- “Username” (specify the username for accessing your image)
- “Installation Directory” by specifying the installation directory with your software

Please see the figure below:

Deployments

1. Create software 2. Create executable 3. Deploy software 4. Activate software

Entries marked with * are required.

Entry Options **Expert Options**

Software: Hello World 1.0

Resource *
Amazon EC2 My resource

Resource account *
Global

Deployment type *
EBS-backed paravirtual AMI

Region *
US Standard

Architecture *
x86_64

Operating system *
Ubuntu 12.04

Image ID *
ami-64e27e0c

Username *
ubuntu

Installation directory *
/bin

Save deployment and proceed to software activation or Save this deployment and register another one

Figure 3.2: Create New Deployment page. Entry Options sub-sub-tab

Once you have finished filling out the “Entry Options” sub-sub-tab, click on the “Expert Options” to see some additional deployment settings:

- “Public image” (select this option in case your image is publicly available)
- “Password” (specify SSH password to access your image; leave blank to use private keys instead)
- “SFTP Sandbox Folder” (for Windows machines using SFTP emulation; specify a root sandbox folder)

- “Description” (add the description for your deployment here)

Please see the figure below:

Deployments

1. Create software → 2. Create executable → 3. Deploy software → 4. Activate software

Entries marked with * are required.

Entry Options | Expert Options

Password

SFTP Sandbox Folder

Description (some HTML tags and attributes can be used)

Save deployment and proceed to software activation or Save this deployment and register another one

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Figure 3.3: Create New Deployment page. Expert Options sub-sub-tab

Once you have populated all the needed data for your deployment, press “Save deployment and proceed to software activation” button, or create an additional deployment by pressing “Save this deployment and register another one”.

Once “Save deployment and proceed to software activation” button is pressed, you will be redirected to the software activation step. On this step you just need to press “Activate software button”. Please see the figure below:

Software

1. Create software → 2. Create executable → 3. Deploy software → 4. Activate software

Activate software

Entry Options | Expert Options | Software Price | Costs | Revenues

Hello World 1.0

Product: Hello World
 Version: 1.0
 Organization: MyOrganization
 Status: pending
 Visibility: private

Figure 3.4: “Activate software” step

Once the “Activate software” button is pressed, your software is active and ready for use.

To register an existing image for your software without using the wizard, navigate to the “Deployments” sub-tab under the “Software” tab. You will be redirected to the Deployments List page, where you need to click on the “Register” button to add a new deployment.

Please see the figure below:



Figure 3.5: Deployments List page

After filling out the deployment creation form, click on the “Save” button. Once the deployment is saved, you will be redirected to the Deployment Details page, where you can view all information on your deployment. You can also see it on the Deployments List page having the “created” status.

Please see the figure below:



Figure 3.6: Deployments List page

To activate your deployment, select the “Activate” option under the corresponding “Actions” dropdown menu. The system will prompt a message for you to confirm the activation of your deployment. To continue, press “OK”.

Please see the figure below:



Figure 3.7: Deployments List page

Now that you have an active deployment, you can activate your software and start using it! Please find the software activation instructions under the “Software activation” section of the guide.

Software Price Setting

Now your software is available within the CBP and you can start generate revenues from its usage by the CBP users. But let’s first set the prices on your product.

Once your software is created, a default software price is automatically created for it that is applicable for all CBP users. All software prices are set to zero by default.

Please see the figure below:



Figure 4.1: Software List page - fees

In case you would like to edit the default software price entry, select the “Edit Prices” option under the corresponding “Actions” menu.



Figure 4.1: Software List page – edit prices

You can also edit software prices by

- clicking on the “Edit Prices” button available under Actions menu on the Software Details page
- clicking on the “Edit Prices” link available under Software Price sub-sub tab on the Software Details page.

Please see the figure below:



Figure 4.2: Software Prices Details page

The form for editing software price has the following fields to be filled in on the “Entry Options” page:

- “Gross license organization fee [EUR/month]” (specify the software price per organization per month)
- “Gross license user fee [EUR/month]” (specify the software price per user per month)
- “Gross license job fee [EUR/job]” (specify the software price per job)
- “Gross license runtime fee [EUR/hour]” (specify the software price per job runtime per hour)
- “Gross license core runtime fee [EUR/core/hour]” (specify the software price per job runtime times the number of cores per hour)
- “Non-commercial rebate [%]” (specify rebate that will be applied to all the mentioned software prices for non-commercial organizations).

Please see the figure below:



Software Prices

Entries marked with * are required.

Entry Options Expert Options

Gross license organization fee [EUR/month]
0.10

Gross license user fee [EUR/month]
0.10

Gross license job fee [EUR/job]
0.10

Gross license runtime fee [EUR/hour]
0.10

Gross license core runtime fee [EUR/core/hour]
0.10

Non-commercial rebate [%]
50

Save

Figure 4.3: Edit Software Price page

After filling out the software price editing form, click on the “Save” button. Once the software price is saved, you will be redirected to the Software Price Details page, where you can view all information on your software price:

- “Gross fee” (the fee specified by you in the software price editing form)
- “Non-commercial organization rebate” (the rebate percent specified by you in the software price editing form)
- “Non-commercial organization rebate amount” (the non-commercial organization rebate amount that is subtracted from the gross fee)
- “Surcharge percent” (the surcharge percent that is collected by the CloudBroker Platform for the software)
- “Surcharge amount” (the surcharge amount that is collected by the CloudBroker Platform for the software)
- “Net fee” (final prices on your software product that are calculated inclusive of software rebate and surcharge values).

Please see the figure below:

The screenshot shows the 'Software Price' tab selected in a navigation bar. Below the navigation bar, there is a table titled 'Edit prices' with the following data:

Fee type	Gross fee	Non-commercial organization rebate	Non-commercial organization rebate amount	Surcharge percent	Surcharge amount	Net fee
License organization fee	€0.10	50.0 %	-€0.05	24.0 %	+€0.01	€0.06
License user fee	€0.10	50.0 %	-€0.05	24.0 %	+€0.01	€0.06
License job fee	€0.10	50.0 %	-€0.05	24.0 %	+€0.01	€0.06
License runtime fee	€0.10	50.0 %	-€0.05	24.0 %	+€0.01	€0.06
License core runtime fee	€0.10	50.0 %	-€0.05	24.0 %	+€0.01	€0.06

At the bottom of the page, there is a footer with the text: 'Version 2.0.0.0 | © Copyright 2009-2014, CloudBroker GmbH. All rights reserved. | Contact | Platform status: working normally'.

Figure 4.4: Software Prices Details

Viewing Software Revenues

You can also view the revenues generated from the usage of your software by the platform users. For this, go to the Software Details page and click on the “Revenues” sub-sub-tab.

Viewing Software Costs

You can view your costs generated from the usage of software by you. For this, go to the Software Price Details and click on the “Costs” sub-sub-tab.

Acknowledgment

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