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Document Version: Limited Pilot Version – 2019-05-22

# Installation Guide for SAP Cloud Platform Cloud Foundry Core

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# 1 Disclaimer

**Disclaimer:** This document is a limited pilot version of the Installation Guide for SAP Cloud Platform Cloud Foundry Core.

## 2 Installing SAP Cloud Platform Landscape Administrator

SAP Cloud Platform Landscape Administrator is a web-based mobile-first application installed as service on your IaaS layer. You have controlled access to SAP Cloud Platform Landscape Administrator from the secured network that you create for it.

The tool can be used with the following browsers: Google Chrome, latest version

SAP Cloud Platform Landscape Administrator is provisioned via installer script downloaded from SAP Service Marketplace (SMP).

The installer of SAP Cloud Platform Landscape Administrator can be started from the following operating systems:

- macOS 10.13 or higher
- Ubuntu 16.0.4 & 18.0.4 LTS
- RedHat 7

Because of its dependencies, currently SAP Cloud Platform Landscape Administrator installer can't be started from Windows host.

Follow the steps below to install SAP Cloud Platform Landscape Administrator:

1. Download version 0.4.0 of the installer tar.gz from SMP  
<https://launchpad.support.sap.com/#/softwarecenter/object/0020000000922662019>
2. Untar the downloaded archive
3. cd into the extracted folder
4. Execute the following command after replacing the missing custom configuration: For --release-version set 0.8.0  

```
./install.sh --infra "alicloud" --sap-userid <s-user> --certificate-password  
<pass-for-signed-sertificate> --certificate-path <absolute-path-to the-  
certificated> --db-file-password <pass-for-encryption> --db-user-password <pass-  
for-db-user> --release-version <latest-available-version> --access-key <access-  
key> --region <region> --secret-key <secret-key> --availability-zone  
<availability-zone> --oauth2-client-id <oAuthClientId> --oauth2-client-secret  
<oAuthClientSecret> --oauth2-client-access-token-uri https://gitlab.tools.vlab-  
sapcloudplatformdev.cn/oauth/token --oauth2-client-authorization-uri https://  
gitlab.tools.vlab-sapcloudplatformdev.cn/oauth/authorize --oauth2-resource-info-  
uri https://gitlab.tools.vlab-sapcloudplatformdev.cn/api/v4/user
```
5. After successful installation, an URL is printed to access the tool, for example: https://<localhost>:443
6. In the oAuth application that you have configured on step 4, change the redirect URL to point to the URL from point 5: https://<localhost>:443/login

# 3 Installing SAP Cloud Platform Cloud Foundry Core

## 3.1 Prerequisites

You need to fulfill the prerequisites to successfully deploy SAP Cloud Platform Cloud Foundry Core.

### i Note

This is a minimum set of requirements. Additional resources may be required, to scale and operate the instances and installed applications.

### Git Repository

To store the landscape configuration you will need a git repository that can be accessed with basic authentication (username and password). For more information see the next page **Set up a Git Repository**.

### DNS Configuration

During the SAP Cloud Platform Cloud Foundry Core installation you will need to provide a DNS server that can resolve public DNS entries and the IaaS endpoints.

You will be required an administrator access to a Naming Service in order to maintain the following DNS entries:

- `\*.cf.[your.chosen.domain]`
- `\*.cfapps.[your.chosen.domain]`
- `\*.authentication.[your.chosen.domain]`
- `authentication.[your.chosen.domain]`
- `ssh.cf.[your.chosen.domain]`
- `\*.telemetry.[your.chosen.domain]`
- `\*.xsuaa-api.[your.chosen.domain]`
- `xsuaa-api.[your.chosen.domain]`

You must configure all DNS entries to resolve the IP addresses of the HAProxy service.

## Certificate Generation

In order to protect the HTTPS endpoints of the landscape you'll need to provide a certificate signed by a trusted authority that supports wildcard entries and has the SAN extension. For more information, see **Generate the SSL Certificate of haproxy** page in this guide.

## Account in the relevant IaaS provider

### 3.1.1 Set Up a Git Repository

SAP Cloud Platform Cloud Foundry Core uses a git repository to store the configuration, credentials and state data of the landscape installation.

#### Procedure

(Required) Create a new Git landscape repository.

- On the user interface of your Git service provider, create a new, empty repository
- Choose a name and set it to private

#### **i** Note

We recommend using a private repository, because it will hold sensitive information such as credentials and access data to the components of your landscape installation.

- Make sure that the repository has a master branch and no content
- You will need the HTTPS Git URL, as well as credentials of user with write access to the repository during the installation process

#### **i** Note

If you use your own Git server, refer to its documentation about how to create a new repository.

## 3.1.2 Generate the SSL Certificate of HAProxy

Productive use requires valid SSL certificates for the `HAProxy` component of your landscape. All incoming web requests are terminated there and relayed internally to the respective app or service. Thus the certificate issued for `HAProxy` needs to contain all required subdomains as Subject Alternative Name (SAN).

### Context

The following Subject Alternative Names (SANs) are required:

- `authentication.${DOMAIN}`
- `*.authentication.${DOMAIN}`
- `authentication.cert.${DOMAIN}`
- `*.authentication.cert.${DOMAIN}`
- `*.cf.${DOMAIN}`
- `*.login.cf.${DOMAIN}`
- `*.uaa.cf.${DOMAIN}`
- `*.cfapps.${DOMAIN}`
- `xsuaa-api.${DOMAIN}`
- `*.xsuaa-api.${DOMAIN}`
- `*.cert.cfapps.${DOMAIN}`
- `*.auditlog.cf.${DOMAIN}`
- `*.cockpit.${DOMAIN}`
- `cockpit.${DOMAIN}`

### Procedure

1. Concatenate the certificate files in the following way:

```
cat {domain}.crt {domain-chain}.crt {domain}.key > ha_proxy.pem
{domain}.crt is the public key for the domain name
{domain-chain}.crt is the public key for the certificate chain (if any)
{domain}.key is the private key for the domain name certificate
```

2. When prompted in SAP Cloud Platform Landscape Administrator for the HAProxy certificate, upload the `ha_proxy.pem` file generated in the above step

## 3.2 Installation with SAP Cloud Platform Landscape Administrator

You can use SAP Cloud Platform Landscape Administrator tool to guide you through the installation of SAP Cloud Platform Cloud Foundry Core landscapes.

### Procedure

#### 1. Login

Log in with your Git account

#### 2. Home page

On the first page after login you are prompted to install your first landscape. In case you have already started landscape installation(s), you can see them listed.

Select **Install Landscape** button to start the installation process

#### 3. Installation

Follow the steps of the Installation Wizard:

- Authentication
  - Define your landscape name
  - Fill in your S-user credentials and select **Connect**
    - Enter S-user
    - Enter Password for the selected S-user
  - Fill in your Git Credentials and select **Connect**
    - Enter Git landscape repository. The repository must be empty and have a "master" branch
    - Enter username for the landscape repository
    - Enter password for the user
    - Enter email address corresponding to the user
  - After you provide all the necessary information, the **Next** button becomes active. Select it to proceed to the next page of the Installation Wizard

#### i Note

The **Next** button might not be active immediately after entering the required data. You will see a message strip: "Cloning repository. Please wait.". The button will be available once the "SAP Cloud Platform, private edition" product repository is cloned successfully.

- Installation Scenario

On this page you see the different installation scenarios which describe the different setup of the landscape that can be installed. For installation on Alibaba Cloud select template "SAP Cloud Platform Cloud Foundry Base on Alibaba Cloud".
- Configuration

On Configuration page you configure the landscape deployments.  
The different deployments are separated in sections. Each section can be minimized/maximized to hide/show its specific properties. The properties depend on the product version and the template that



you selected on Step 2. The displayed properties don't have default values, and you have to configure them manually.

After you've configured all needed properties, select **Next** to start the installation of the landscape.

- Installation

For the installation of the current version there are the following manual steps:

- After Init Job fails select Retry
- Manual Steps after Jumpbox deployment fails
  - Manually activate Global Accelerator (see the next page **Global Accelerator Details**)
  - Manually change platform subnet routetable to GA
  - Change the configuration of core-commercialization-foundation deployment:  
Open config.yml and edit the values of

```
regional_clients:
  cis-cross-region-client:
    client_id:
    region:
    secret:
```

- Change configuration of monitoring deployment:  
Open config.yml and replace null values with ""
- Change configuration of concourse
- Change configuration of iaas-routing. This is optional step that might speed up the download of artifacts during deployment.  
Open config.yml and edit the value of property ali\_global\_acceleration\_exclude\_ranges
- For bootstrap-bosh-persistence, bosh-persistence and bosh-sf-persistence:

```
cp-config edit -d bootstrap-bosh-persistence -p
config.backup_retention_days -v 0
cp-config edit -d bosh-persistence -p config.backup_retention_days -v 0
cp-config edit -d bosh-sf-persistence -p
config.backup_retention_days -v 0
```

For CF-persitence:

```
cp-config edit -d cf-persistence -p
config.alicloud_rds.ccdb.backup_retention_days -v 0
cp-config edit -d cf-persistence -p
config.alicloud_rds.uaadb.backup_retention_days -v 0
cp-config edit -d cf-persistence -p
config.alicloud_rds.locketdb.backup_retention_days -v 0
cp-config edit -d cf-persistence -p
config.alicloud_rds.diegodb.backup_retention_days -v 0
cp-config edit -d cf-persistence -p
config.alicloud_rds.silkdb.backup_retention_days -v 0
cp-config edit -d cf-persistence -p
config.alicloud_rds.credhubdb.backup_retention_days -v 0
cp-config edit -d cf-persistence -p
config.alicloud_rds.networkpolicydb.backup_retention_days -v 0
```

- Merge the above changes in the master branch of the landscape repository and push to remote repository
- Retry in Landscape Administrator

## Note

During the installation process, you will be prompted to configure the DNS for list of IPs. After you configure them with your DNS provider, continue the installation.

- Summary

You can review the status of the installation steps and retry if there is a failed step.

## 3.2.1 Global Accelerator Details

Bind backend service instance to GA

- Create GA instance

The screenshot shows the 'Global acceleration (monthly)' configuration page. On the left, under 'Basic Configuration', there are several settings: 'Bandwidth type' is set to 'Bandwidth exclusive'; 'Acceleration area' is set to 'Europe'; 'area' is set to 'North China 1 (Qingdao)'; 'Service Area' is set to 'China Mainland'; 'Billing method' is set to 'Billing by bandwidth'; and 'Peak bandwidth' is set to '10Mbps'. On the right, the 'Current Selected' summary shows: 'Bandwidth Type: Bandwidth Exclusive', 'Acceleration Zone: Europe', 'Region: Central Europe 1 (Frankfurt)', 'Service Area: Mainland China', 'Billing Method: Bandwidth by Bandwidth', 'Bandwidth: 10Mbps', 'Example Name: -', 'Description: -', 'Quantity: 1', and 'Purchase Duration: 1 Month(s)'. The total fee is 'CN¥11,200.00' with a saving of 'CN¥800.00'. A 'Buy Now' button is visible. At the bottom, there is an 'Instance name' input field.

Follow the links below for a more detailed step-by-step guide:

- [https://help.aliyun.com/document\\_detail/57417.html?spm=5176.6660585.774526198.2.5dc86bf8Sc7kU4](https://help.aliyun.com/document_detail/57417.html?spm=5176.6660585.774526198.2.5dc86bf8Sc7kU4)
- <https://www.youtube.com/watch?v=m0YqBFvVOBs>


- Open GA IP page select GA IP and click on "Bind Instance"

Create Instance	Refresh	Custom					
Instance ID/Name	IP Address / Client Region	Monitor	Bandwidth	Billing Method	Status(All) ↑	Backend Service Region(All) ↑	Backend Service Instance
ga-gw81jemdgftu4s182u7a globalsap	47.254.170.160 Europe		10Mbps <a href="#">Change Bandwidth</a>	Pay-As-You-Go 12/19/2018, 08:53:27 Created	● Available	Mainland China	<a href="#">Bind Instance</a>

3. In the window enter the following details
  - Backend service region - Shanghai
  - Instance type - ECS instance
  - Bind instance - Select GA instance vm from GA vpc (vm instance name will be ga-instance-landscape-name)

## Backend Service Instance



 Caution: Once the service is activated. The backend service can be accessed from the Internet. To protect your instance against attacks from the Internet, make sure you have configured security groups for your ECS instance and the whitelist for your SLB instance.

### Global Acceleration Instances

ga-gw81jemdgfitu4s182u7a/globalsap

### IP Address/Client Region

47.254.170.160/Europe

### Backend Service Region

Mainland China

### ● Backend Service Region

China (Shanghai) 

### ● Instance Type

ECS Instance 

### ● Bind Instance

ga-instance-ali-1-vpc-sha/i-uf63hupattpnw0w1dkme 

Press OK to continue

## SSH to global acceleration instance

1. Connect to Jumpbox and then do SSH to global acceleration instance. Pay attention to use private IP of VM instance, the name will be ga-instance-landscape-name

- Navigate to Backend Service Instance

The screenshot shows the AWS Management Console interface for the 'Global Acceleration' service. The left sidebar contains navigation options like VPCs, Route Tables, VSwitches, and Elastic IP Addresses. The main content area displays a table of Global Acceleration instances. A green arrow points to the 'Backend Service Instance' column header in the table.

Instance ID/Name	IP Address / Client Region	Monitor	Bandwidth	Billing Method	Status(All)	Backend Service Region(All)	Backend Service Instance	Description	Actions
ga-gw82h0lr1rqjn4ru9p3 cf-cn40-staging	47.254.178.91 Europe		50Mbps Change Bandwidth	Subscription 03/26/2019, 18:00:00 Expire	Allocated	Mainland China	i-uf6h17cubcybojgyvoaj China (Shanghai) 10.0.10.4	ali staging lands...	Unbind Renew Service Configurations

- Navigate to Backend Service Instance ID

The screenshot shows the 'Backend Service Instance' details page in the AWS Management Console. The page displays information about the selected instance, including its region, type, ID, and IP address. A green arrow points to the 'Backend Service Instance ID' field.

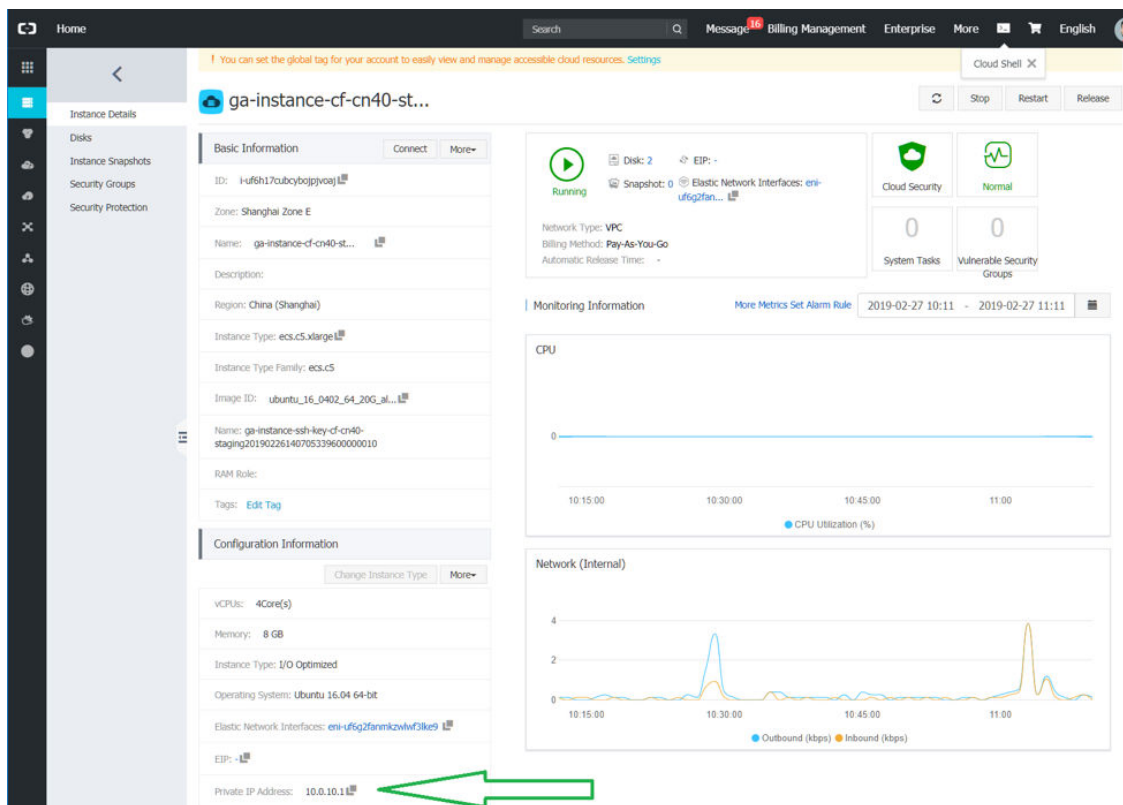
**Backend Service Instance**

- Backend Service Region: China (Shanghai)
- Backend Service Instance Type: ECS Instance
- Backend Service Instance ID: [i-uf6h17cubcybojgyvoaj](#)
- Backend Service IP Address: 10.0.10.4

**Global Acceleration Instances**

Instance ID	Acceleration Instance IP/Region	Backend Service IP
<a href="#">ga-gw82h0lr1rqjn4ru9p3</a>	47.254.178.91/Germany (Frankfurt)	10.0.10.4

- Here you can find the private IP of global acceleration instance



- ssh root@<private ip of global acceleration instance> -i ./deployments/iaas-routing/credentials/global-acceleration.key copy global-acceleration.key from landscape code
- \* If connection failing due to incorrect permissions, run `chmod 600 ./deployments/iaas-routing/credentials/global-acceleration.key` to fix that.

## Save the private IP of global acceleration interface

After the binding is done, write down the private IP of global acceleration interface (the IP is changing every time on new binding)

Status(All) ▾	Backend Service Region(All) ▾	Backend Service Instance	Description
● Allocated	Mainland China	i-uf63hupattpnw0w1dkme China (Shanghai) 10.0.10.27	sap cp

## Activate global acceleration

To activate global acceleration, execute on global acceleration instance VM: \* Pay attention to use the private IP of global acceleration interface \* `/usr/local/bin/activate-global-acceleration <global acceleration interface IP>` \* Please note that the SSH connection may be interrupted after the command execution

## Validate Frankfurt IP of the global acceleration

Connect to Jumpbox machine and check IP using URL `http://ip-api.com/json` - it should show Frankfurt IP of the global acceleration

```
Welcome to Alibaba Cloud Elastic Compute Service !

Last login: Wed Feb 27 00:14:55 2019 from 193.57.20.14
START Session for User: bootstrapper connected from: 10.0.0.13
bootstrapper@iZuf64vbp6wu2ezbn65d66Z:~$ curl http://ip-api.com/json
{"as": "AS45102 Alibaba (China) Technology Co., Ltd.", "city": "Frankfurt am Main", "country": "Germany", "countryCode": "DE", "isp": "Alibaba.com L", "lat": 50.1129, "lon": 8.66236, "org": "AliCloud (Germany) GmbH", "query": "47.254.178.91", "region": "HE", "regionName": "Hesse", "status": "success", "timezone": "Europe/Berlin", "zip": "60325"}bootstrapper@iZuf64vbp6wu2ezbn65d66Z:~$
```

Add Global Acceleration to the platform Subnet for the improvement of CF push scenario

### Note

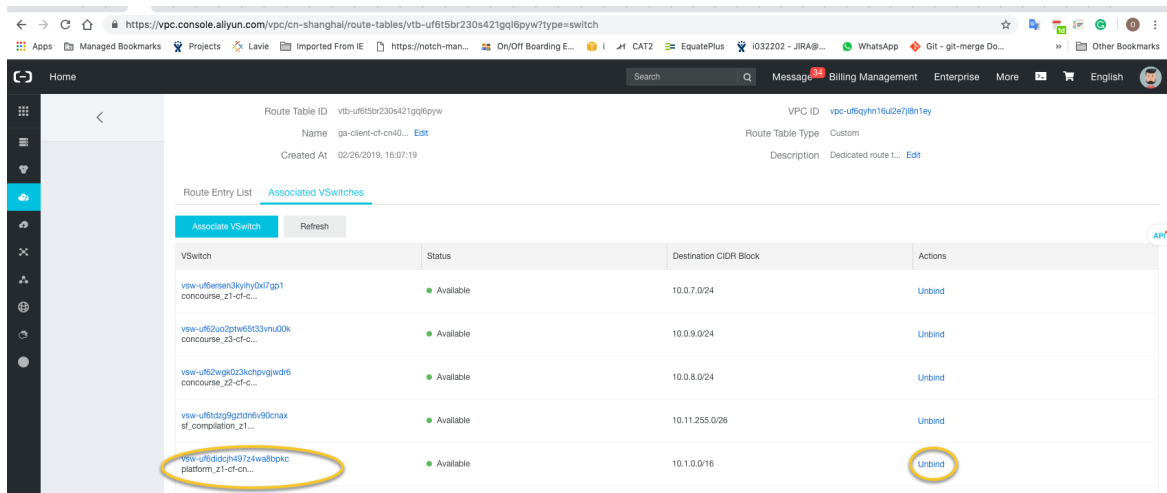
GA for the CF component allowed on the STAGING landscape only !!! Don't enable it on LIVE landscape.

1. Login to the Aliyun Portal
2. Go to VPC > Route Tables
3. Click on the "ga-client-cf-cn40-staging" route table
4. Select the "Associated VSwitches" tab
5. Click on the "Associated VSwitch" button
6. Select the "platform\_z1-cf-cn40-staging...." VSwitch
7. Repeat the last step for the "platform\_z2-cf-cn40-staging...." and "platform\_z3-cf-cn40-staging...." VSwitches
8. See the following screenshot as reference

The screenshot shows the Alibaba Cloud VPC console. The left sidebar contains a navigation menu with 'Route Tables' highlighted. The main panel displays a list of Route Tables. One entry is circled in yellow, showing its Instance ID/Name, VPC, and VRouter ID. Below this, a detailed view of a specific Route Table is shown, with the 'Unbind' link for the associated VSwitch highlighted in yellow. An 'Associate VSwitch' dialog box is also visible on the right side of the detailed view.

Instance ID/Name	VPC	VRouter ID
vtb-uf6xd7qz7y08jai4vks ga-instance-table...	vpc-uf6h3cd924g3prkxdtzq ga-cf-cn40-staging	vrt-uf63d5f5nw5w3geau53
vtb-uf634ugrbdmqit7y2hw8 -	vpc-uf6h3cd924g3prkxdtzq ga-cf-cn40-staging	vrt-uf63d5f5nw5w3geau53
vtb-uf6w0d8mak5uwzsmrphy ga-instance-table...	vpc-uf6h3m3mey2c1qbn2z3yg3 ga-cf-cn40-staging	vrt-uf63r6811tju0uhnjrc4
vtb-uf69e4ic70nxar4xoickl -	vpc-uf6h3m3mey2c1qbn2z3yg3 ga-cf-cn40-staging	vrt-uf63r6811tju0uhnjrc4
vtb-uf6s4wfmvg6colb97ds ga-client-alidev005	vpc-uf6h3m3mey2c1qbn2z3yg3 ga-cf-cn40-staging	vrt-uf6h5771uygspnaxjwl
vtb-uf6f6wsvq7qohuu1c8qyh2 -	vpc-uf6h3m3mey2c1qbn2z3yg3 ga-cf-cn40-staging	vrt-uf6h5771uygspnaxjwl
vtb-uf6f5b5r230a421gq6pyw ga-client-cf-cn40...	vpc-uf6h3m3mey2c1qbn2z3yg3 ga-cf-cn40-staging	vrt-uf63f6d20p11x3h3ze3
vtb-uf6ppzifrecf38uwa4 -	vpc-uf6h3m3mey2c1qbn2z3yg3 ga-cf-cn40-staging	vrt-uf63f6d20p11x3h3ze3

- To remove the GA from the platform VSwitch, just click "Unbind" link on the attached below VSwitches, see below screenshot



## 3.3 Post-Installation Activities

### 3.3.1 Access the Concourse Tool

#### Context

The user and password for concourse are configured in the concourse deployment. If you are not sure what was configured, you can retrieve them from the `landscape_repository/deployments/concourse/credentials.yml` file.

You can access the concourse tool at `https://concourse.cf.<yourdomain>.<tld>`.

The landscape-update-pipeline should have been automatically started from the Landscape Administrator after the bootstrap job is successful.





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