CONFIDENTIAL

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

Installation Guide for SAP Cloud Platform Cloud Foundry Core

THE BEST RUN SAP

Content

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 installion 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 Lanscape** button to start the installation process
3. Installation

   Folow 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

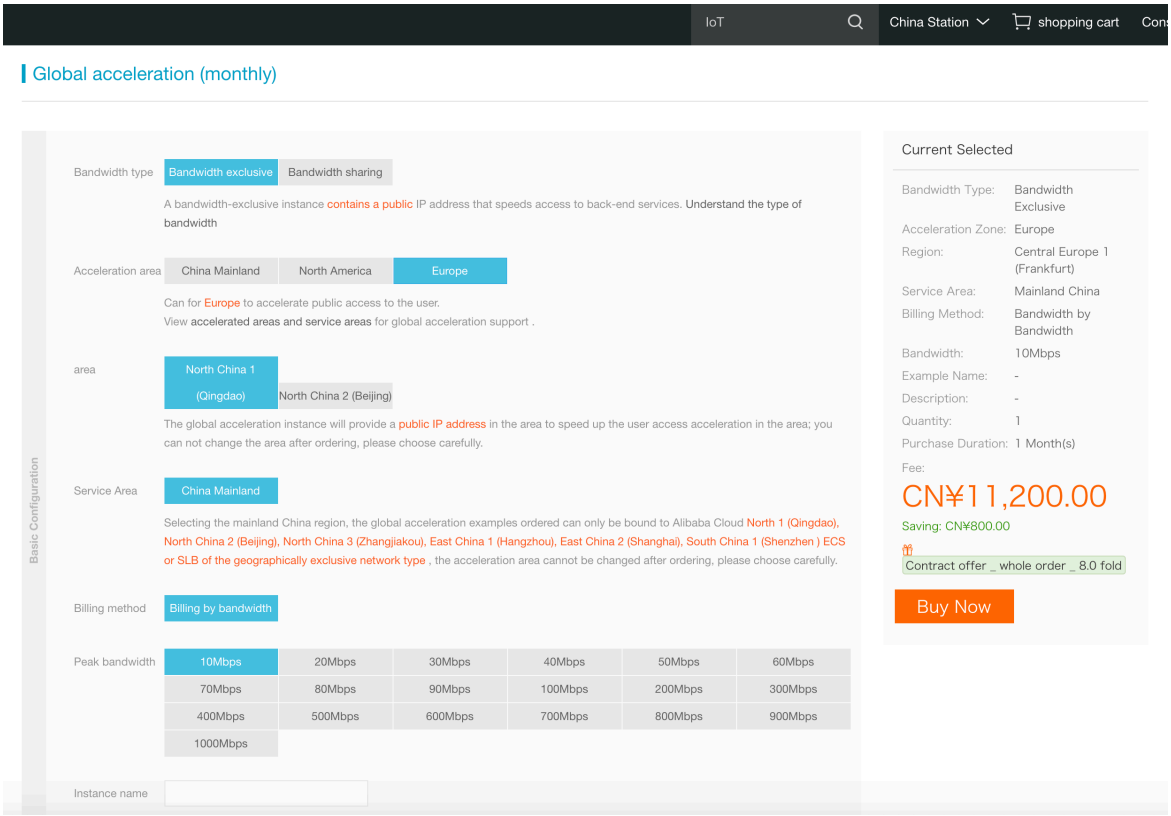
> **Note**
>
> During the installation process, you will be prompted to configure the DNS for list of IPs. After you configure them with your DNS provider, continue the installation.

- 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

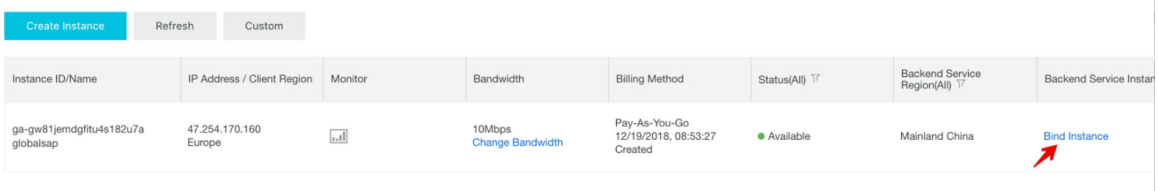
1. Create GA instance



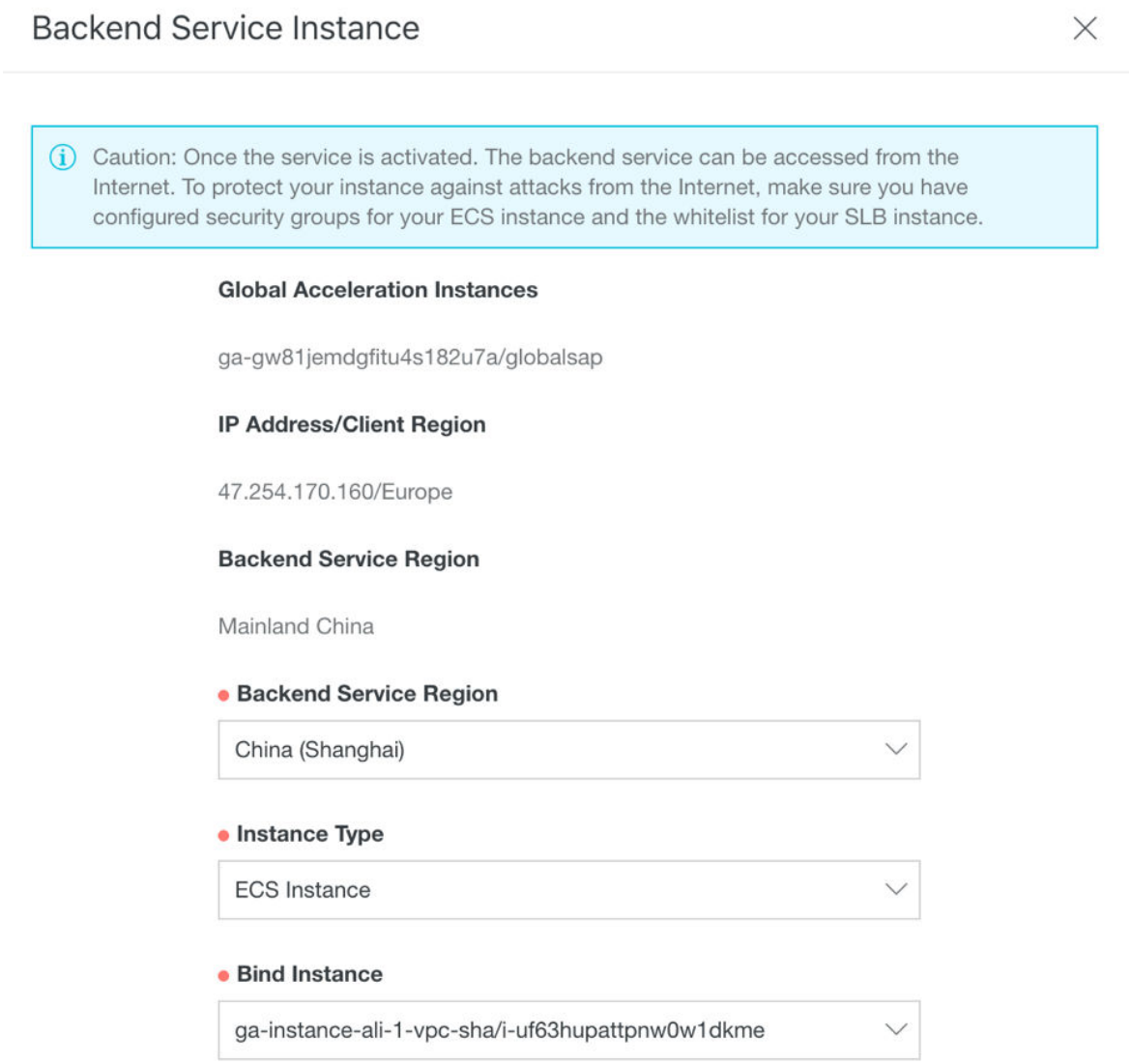
Follow the links below for a more detailed step-by-step guide:

- https://help.aliyun.com/document_detail/57417.html?spm=5176.6660585.774526198.2.5dc86bf8Sc7kU4
- https://www.youtube.com/watch?v=m0YqBFvVOBs

2. Open GA IP page select GA IP and click on "Bind Instance"



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)

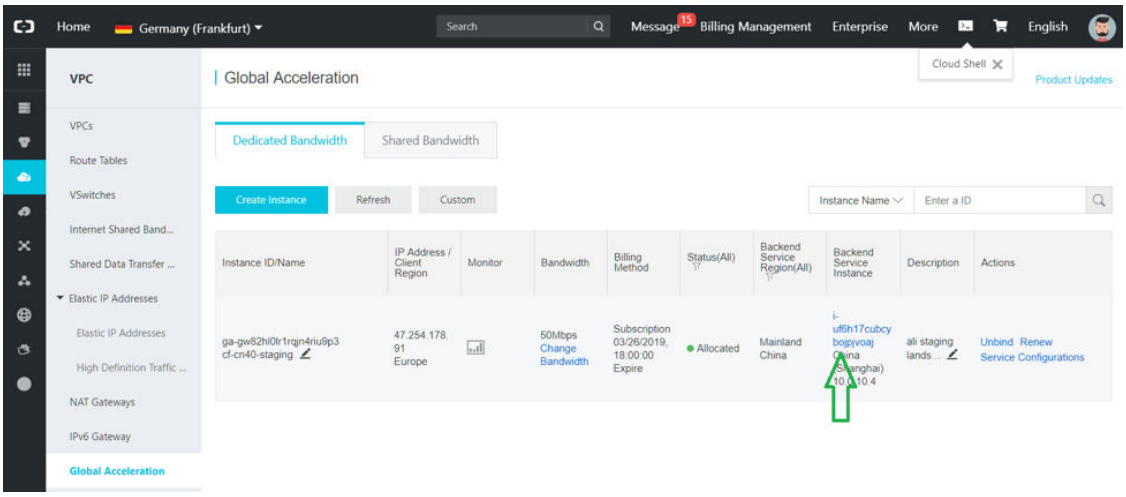


Press OK to continue

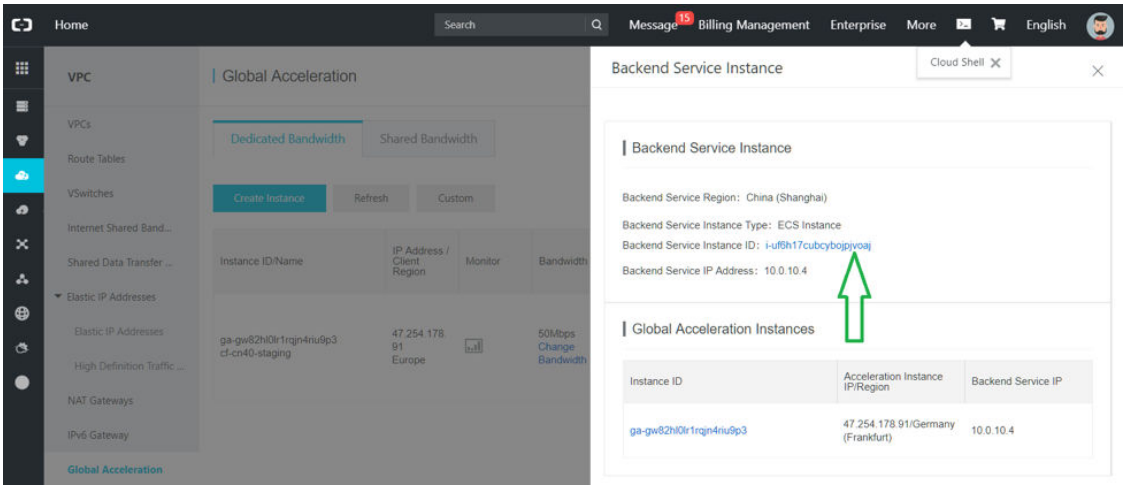
SSH to global acceleration instance

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`

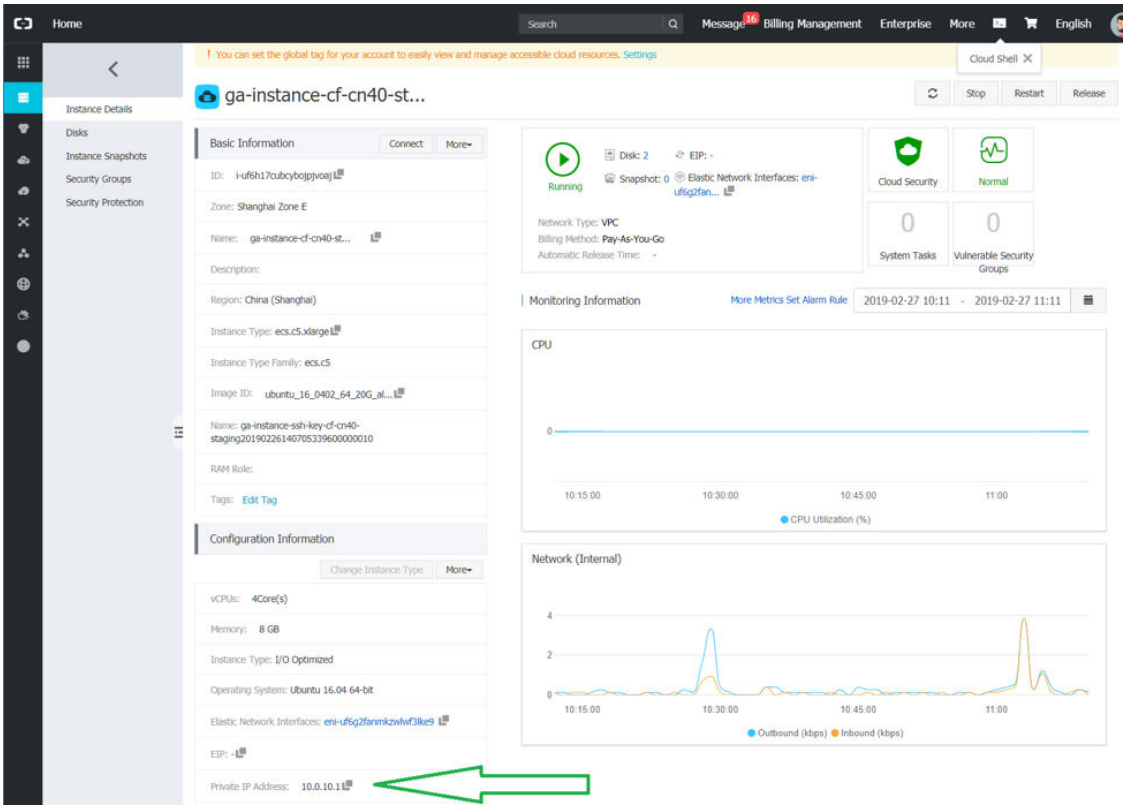
- Navigate to Backend Service Instance



- Navigate to Backend Service Instance ID



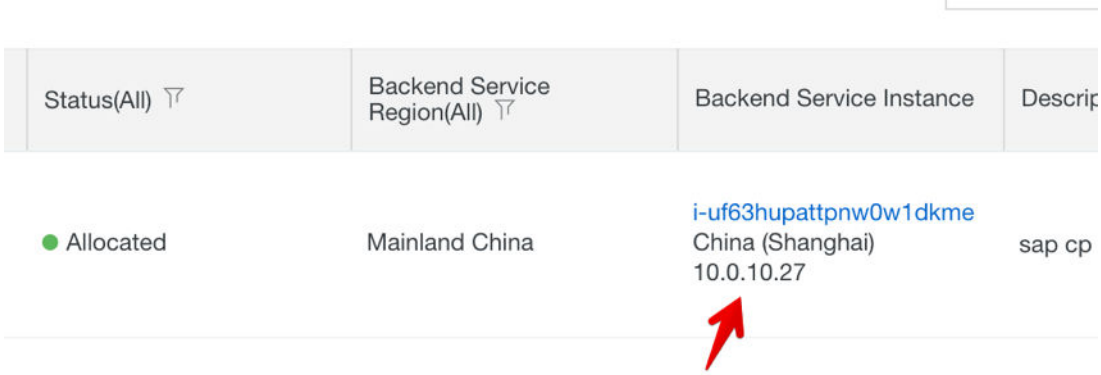
- Here you can find the private IP of global acceleration instance



- `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)



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

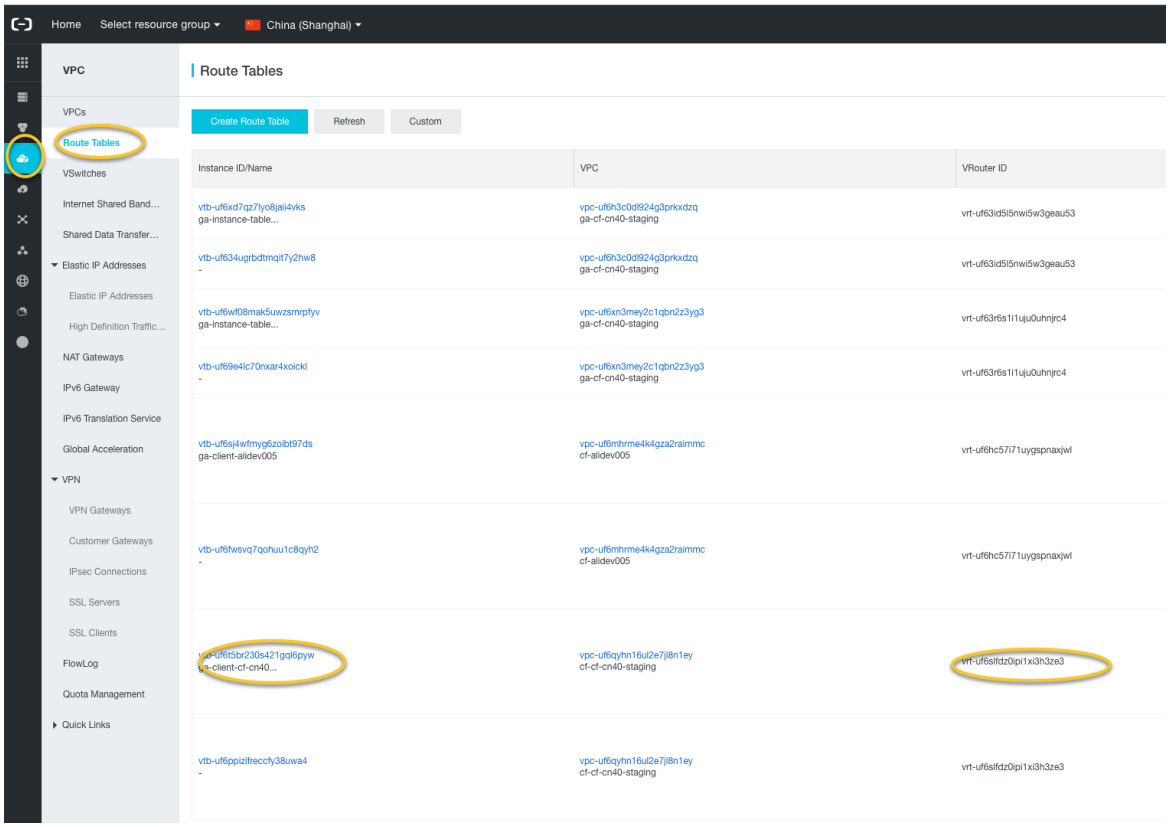
Validate Frankfurt IP of the global acceleration

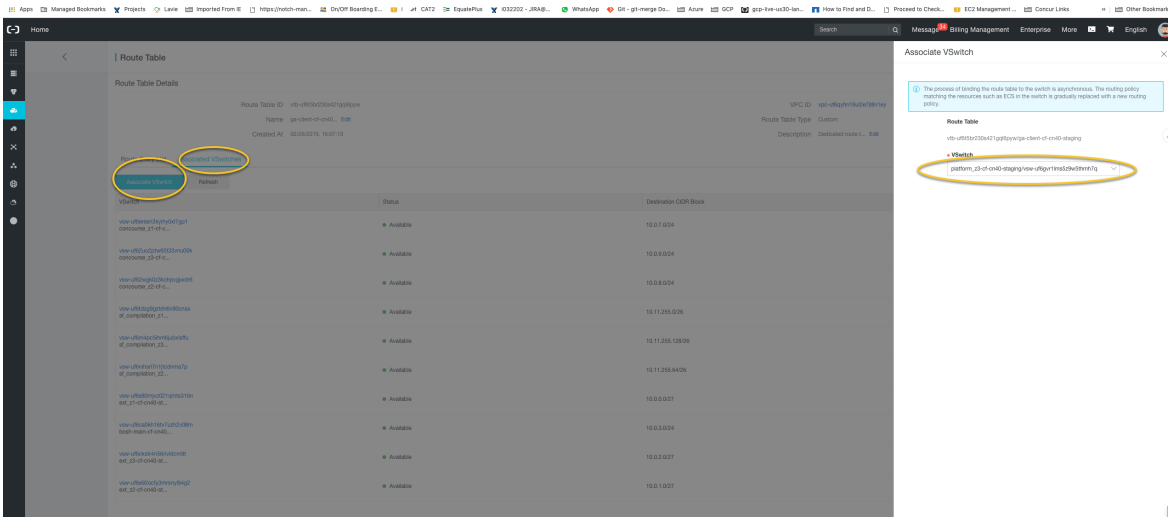
Connect to Jumpbox machine and check IP using URL `http://ip-api.com/json` - it should show Frankfurt IP of the global acceleration

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

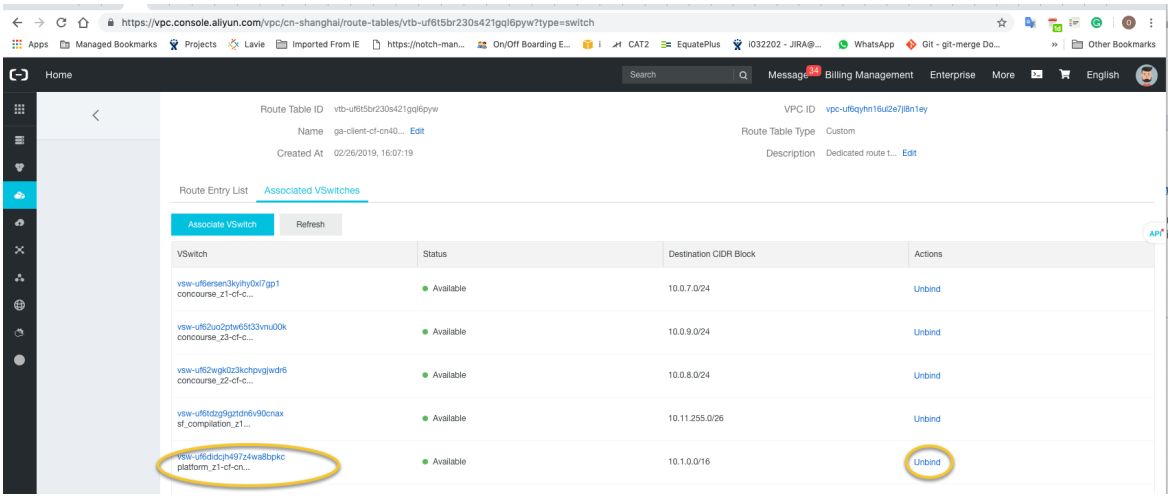
> **i** Note
>
> GA for the CF component allowed on the STAGING landscape only !!! Don't enable it on LIVE landscape.

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





9. To remove the GA from the platform VSwitch, just clcik "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.

Important Disclaimers and Legal Information

Hyperlinks

Some links are classified by an icon and/or a mouseover text. These links provide additional information.
About the icons:

- Links with the icon : You are entering a Web site that is not hosted by SAP. By using such links, you agree (unless expressly stated otherwise in your agreements with SAP) to this:
  - The content of the linked-to site is not SAP documentation. You may not infer any product claims against SAP based on this information.
  - SAP does not agree or disagree with the content on the linked-to site, nor does SAP warrant the availability and correctness. SAP shall not be liable for any damages caused by the use of such content unless damages have been caused by SAP's gross negligence or willful misconduct.
- Links with the icon : You are leaving the documentation for that particular SAP product or service and are entering a SAP-hosted Web site. By using such links, you agree that (unless expressly stated otherwise in your agreements with SAP) you may not infer any product claims against SAP based on this information.

Beta and Other Experimental Features

Experimental features are not part of the officially delivered scope that SAP guarantees for future releases. This means that experimental features may be changed by SAP at any time for any reason without notice. Experimental features are not for productive use. You may not demonstrate, test, examine, evaluate or otherwise use the experimental features in a live operating environment or with data that has not been sufficiently backed up.
The purpose of experimental features is to get feedback early on, allowing customers and partners to influence the future product accordingly. By providing your feedback (e.g. in the SAP Community), you accept that intellectual property rights of the contributions or derivative works shall remain the exclusive property of SAP.

Example Code

Any software coding and/or code snippets are examples. They are not for productive use. The example code is only intended to better explain and visualize the syntax and phrasing rules. SAP does not warrant the correctness and completeness of the example code. SAP shall not be liable for errors or damages caused by the use of example code unless damages have been caused by SAP's gross negligence or willful misconduct.

Gender-Related Language

We try not to use gender-specific word forms and formulations. As appropriate for context and readability, SAP may use masculine word forms to refer to all genders.

www.sap.com/contactsap

THE BEST RUN SAP