**DBAG Terraform module for S7 environment**

Contents

[1. Overview 1](#_Toc178079144)

[2. Example of using the module 2](#_Toc178079145)

[3. Prerequisites to environment creation 2](#_Toc178079146)

[4. Module Input Variables 3](#_Toc178079147)

[5. Steps to rollout new S7 environment 5](#_Toc178079148)

# Overview

* The terraform module simplifies the creation of the s7 project environment GCP infrastructure and the platform related services including the below infrastructure:
  + - GKE Cluster.
    - Cloud SQL database instance.
    - Bastion host for connectivity with GKE cluster.
    - Service Accounts.
    - Iam Bindings with Service accounts.
    - KMS encryption keys.
    - Static Ips.
    - DNS services.
    - Kubernetes namespaces.
    - Kube-Proxy service (needed for connectivity from terraform to GKE Cluster).
* In addition to the infrastructure, the module deploys the following platform services using helm charts:
  + - Argocd.
    - Argocd image updater
    - Allure service.
    - Opentelemetry collector.

# Example of using the module

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# Prerequisites to environment creation

* + Before creating a new S7 environment, the below steps has to be applied:
    - 1. Project Onboarding:
         * Create a new GCP project.
         * Provide environment necessary labels.
      2. Network onboarding:
         * The following network resources must be created and provided by the DBG support team:

Network project id.

VPC network name.

Subnetwork from the network project id.

VPC connection name ( necessary for the kube-proxy service).

Static Ips.

DNS zone .

GKE master IPv4 cidr block.

Subnet name of the GKE Pods.

Subnet name of the GKE Services.

# Module Input Variables

* Below variables are necessary to be set for using the module to rollout a new s7 environment:

|  |  |
| --- | --- |
| **Name** | **Description** |
| project\_id | Google project name |
| env\_name\_long | Name of the environment (eg. development, testing , production, ..) |
| project\_number | Google project number |
| network | Name of the shared VPC network |
| network\_project\_id | Google network project id |
| subnetwork | Google VPC subnetwork from network project |
| vpc\_conn\_range | VPC connector IP ranges |
| region | Name of the GCP zone where the environment will be created |
| env\_name\_short | Short name of the environment ( eg: dev , test , prod ,…) |
| labels | Environment labels as defined by project owners |
| gke\_labels | Labels associated with the GKE node pool |
| db\_user | Postgres database user |
| db\_pass | Postgres database password |
| gui\_ip | Static IP for the GUI application |
| fred\_ip | Static IP for the FRED application |
| allure\_ip | Static IP for the Allure application |
| argocd\_ip | Static IP for the Argocd application |
| gateway\_ip | Static IP for the Gateway application |
| dns\_name | DNS naming service name |
| dns\_zone\_name | DNS service zone name |
| create\_bastion\_vm | A Boolean flag to indicate whether to create a bastion host or not |
| gcs\_fuse\_csi\_driver | A Boolean flag to indicate whether to enable the GCS Fuse CSI driver addon for the GKE cluster |
| bastion\_vm\_machine\_type | The required compute engine machine type for the bastion host |
| master\_ipv4\_cidr\_block | Master IPv4 cidr range required for the GKE cluster |
| subnet\_ip\_range\_pods | Pod IP ranges required for configuring the GKE Cluster |
| subnet\_ip\_range\_services | Services IP ranges required for configuring the GKE Cluster |
| k8s\_namespaces | Required Kubernetes namespaces to be created |

# Steps to rollout new S7 environment

* Following the below steps to rollout a new s7 environment using the terraform module:
  1. Clone the S7.infra github repository (<https://github.deutsche-boerse.de/derivatives/s7.infra>)
  2. Create a new feature branch to push the new environment changes.
  3. Under the directory ( s7.infra/terraform/environments) choose the desired environment folder , or create a new folder if environment doesn’t exists

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* 1. Under the desired environment folder, create a copy of the below module files and paste them, current example files can be found under the (s7.infra/terraform/environment/test) folder.  
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  2. Using your coding IDE , edit the **“terraform.tf”** file by changing the workspace name in the cloud section according to the chosen environment.  
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  3. Using your coding IDE, set the values of are the variables in the file “**terraform.auto.tvfars”** according to the table described in section 4.
  4. Save and commit your changes to the feature branch.
  5. Create a new pull request to merge your feature branch with the main branch under the s7.infra github repository.
  6. Once a new pull request is created in github , terraform workflows will start the validate and plan running , check under github actions .
  7. Once the terraform plan is triggered via the github workflows , you can check the resulted plan in TFE ( :  
     <https://tfe.deutsche-boerse.de/app/deutsche-boerse/workspaces/> )
  8. Select the workspace where you targeted your terraform changes and fid plans under **Runs**

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* 1. By the selecting the triggered run, you will find out the changes triggered by the plan

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