Machine Reasoning and Reasoning System User Guide

Intelligent Teaching Assistant System

TEAM MEMBERS

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1.0 Abstract

This document is about how to deploy the Intelligent Teaching Assistant System. Considering the system's architecture and connection between every components, our team choose the docker as our system deployment environment. Using a docker can further improve the portability of our system and can be deployed, so long as has the docker and python3.6 environment any server can only through a line command can complete the deploying and running of the whole system, at the same time because it is based on the docker and docker - compose deployment, each function module is encapsulated as a docker container, so you can compile each module of the enclosed update, improve the maintainability and expansibility of the system

2.0 Deployment Structure

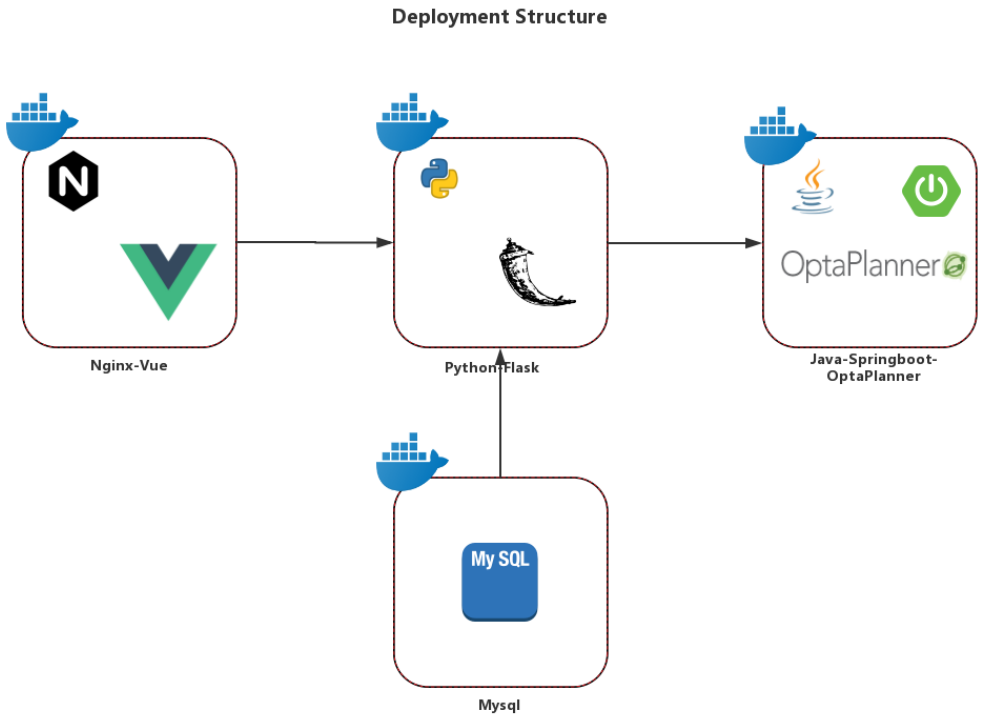


Figure 1 Deployment Structure

In the deployment structure of this system, our team use four docker images to package and deploy components.

Nginx-Vue: this is a docker images based on official Nginx docker image. We use the Nginx to proxy our Single-Page Application based on Vue

Python-flask: this is a docker images based on official python3.6 docker image. For offline deployment, our team pre-install all the python requirements of the backend and packaged it to be a new docker images -- Python-flask.

MySQL: this is a docker images based on official MySQL 5.6 docker images. To prevent garbled code problems, our team modified the setting of MySQL and packaged it to be a new docker image –- itas-db.

Java-Springboot-Optaplanner: this is a docker image based on official Java 8 docker image. Because the Springboot application can be package into one single jar file with all the dependencies, this docker image is just provide the Java environment for the springboot and Optaplanner in it.

3.0 Dependencies

Docker Environment: version: 18.09.0

Python environment: version: Python3.6

4.0 Key files of Deployment

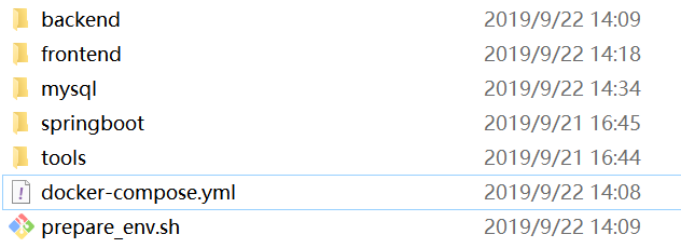


Figure 2 Files of Deployment

The docker-compose.yml, prepare_env.sh, all the files in the tools folder are the most important files in the deployment package.

The docker-compose.xml is to control our internal system's start and stop, which needs the python3.6 environment.

```yaml
version: '3'
services:
  mysql:
    image: itas-db:1.0
    ports:
      - "3364:3306"
    volumes:
      - "./mysql/data:/var/lib/mysql"
    restart: always

  flask:
    build: ./backend
    ports:
      - "5000:5000"
    links:
      - mysql:mysql
    depends_on:
      - mysql
      - springboot
    restart: always

  vue:
    build: ./frontend
    restart: always
    ports:
      - "9528:80"
    depends_on:
      - flask

  springboot:
    build: ./springboot
    restart: always
    ports:
    -  "8080:8080"
```

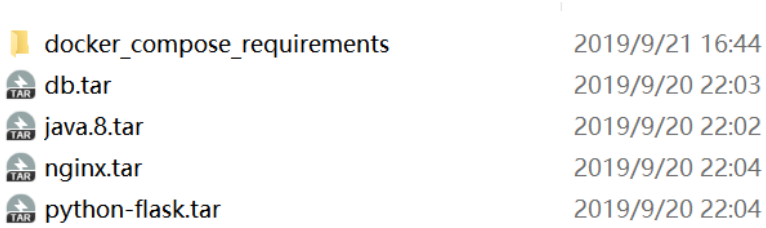
Figure 3 docker-compose.yml

The prepare_env.sh is the shell script to prepare the environment of deployment and start our system.

```bash
#!/bin/sh

echo "loading docker images"
docker load < ./tools/db.tar
docker load < ./tools/nginx.tar
docker load < ./tools/java.8.tar
docker load < ./tools/python-flask.tar

echo "install docker-compose"
pip install docker-compose -f ./tools/docker_compose_requirements/requirements.txt


echo "change to the static IP"
sed -i "s/localhost/$1/g" ./frontend/dist/static/config.js

docker-compose down
docker-compose build --no-cache
docker-compose up
```

Figure 4 prepare_env.sh

The tools folder contains all the required python libaray by docker-compose and all the docker images our system need. This folder is prepares for offline deployment.



4.0 Deployment Process

For the deployment, our team use the ISS-VM provided by Sam, which is for the docker and python3.6 environment, if you has your own server with docker and python3.6, you can pass the download VM and setting static IP part.

1. First please download the our system's docker Deployment Packages(This is on the Google Drive, because it is too big for the GitHub)

   https://drive.google.com/open?id=15bdPGfDq6Emo4og2YwqFu4FmDujQXQ8j

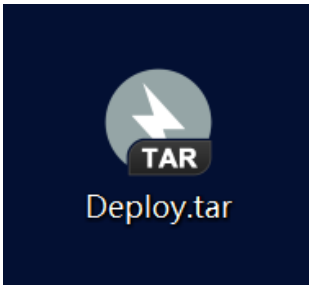


Figure 5 Deploy.tar

2. Please download and install **iss-vm** according to this document
   https://github.com/telescopeuser/iss-vm/blob/master/User%20Guide%20for%20iss-vm.pdf

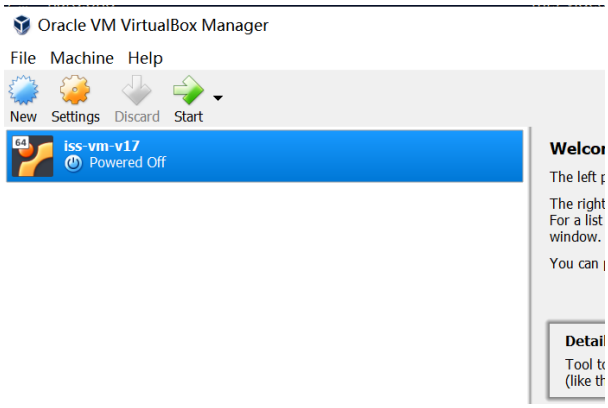


Figure 6 Install ISS-VM

3. Please set the static IP address of the **iss-vm** according to the following documents
   https://drive.google.com/open?id=1qJ2P0O490Yngy4ruq8MniCnnCIsh4A-L

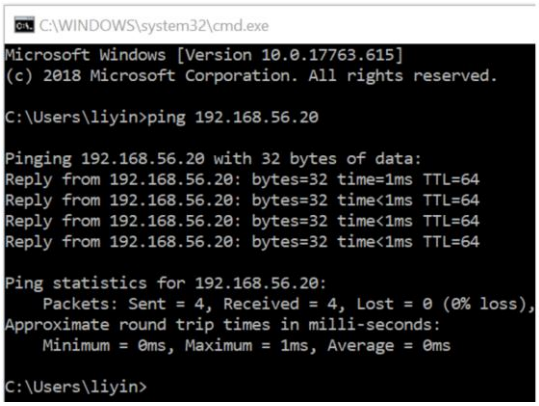


Figure 7 ping the VM using Static IP

4. Please use FileZilla to upload the deployment package (Deploy.tar) into /home/iss-user/

   FileZilla Download Link:

   Mac: https://download.filezilla-project.org/client/FileZilla_3.44.2.1_macosx-x86_sponsored-setup.dmg

   Windows: https://filezilla-project.org/download.php?type=client

   Account: Username: iss-user Password: iss-user

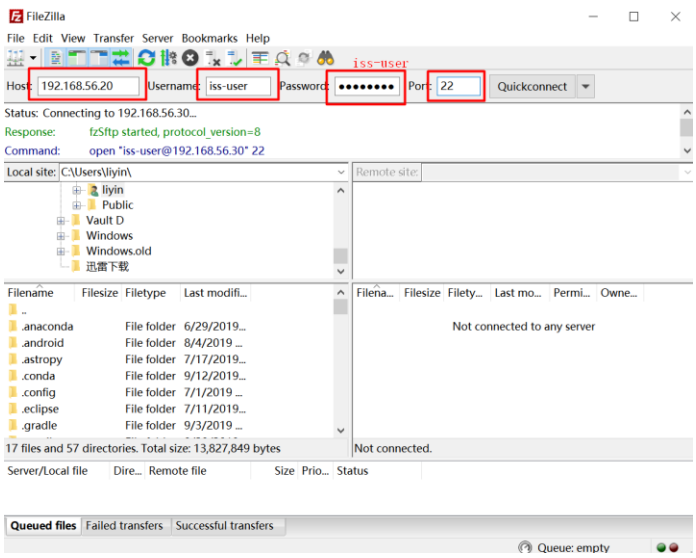


Figure 8 Use the Filezilla to connect the VM

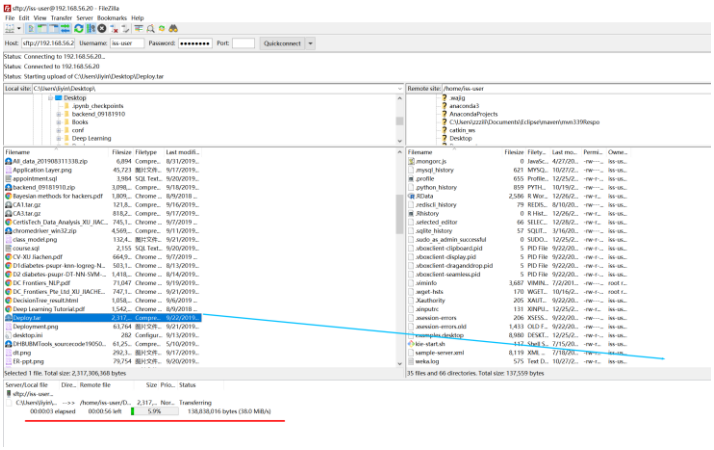


Figure 9 Upload the Deployment Package

5. Right click on VM desktop and click Open a Terminal to Open a Terminal
6. Please use `cd /home/iss-user/` command to change the location

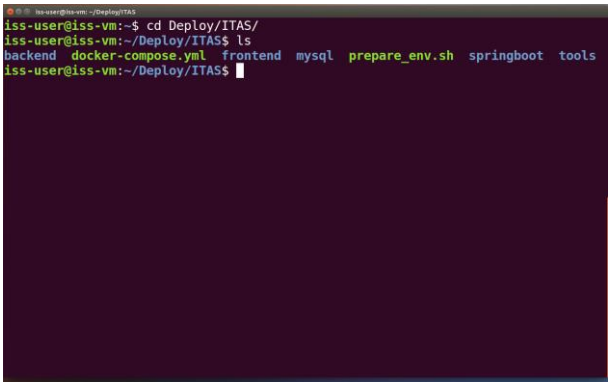


Figure 10 cd /home/iss-user

7. Please use `tar -xvf Deploy.tar` to extract the deployment file

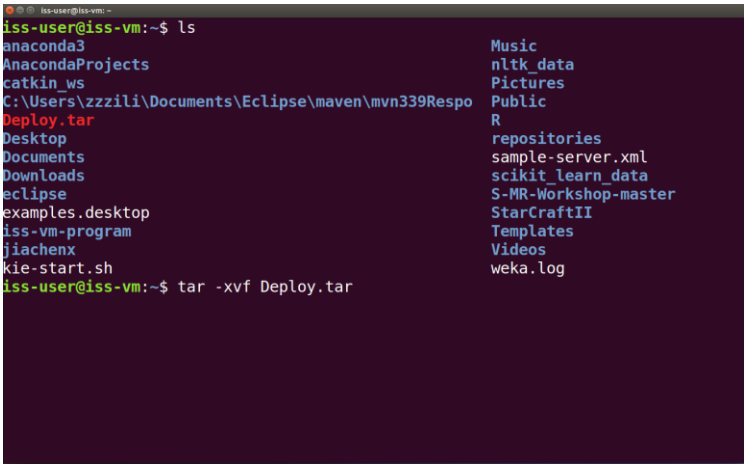


Figure 11tar -xvf Deploy.tar

8. Please use `cd Deploy/ITAS` to enter the extracted deployment file

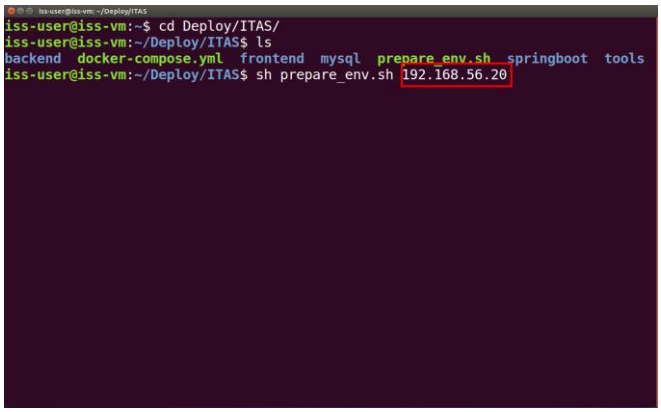


Figure 12 cd Deploy/ITAS

9. Please use `sh prepare_env.sh XXXX` command to prepare the environment and start Intelligent Teaching Assistant System
    a. XXXX represents the Static IP you set in the , if you use your own server and your know the internet IP for your server, you can use that
    b. This action is to change the backend ip of the frontend, to make sure the frontend has the right Ip address to get the data

Figure 13 sh prepare_env.sh XXXX

10. Launch the Chrome browser on the host, visit http://XXXX:9528, then you can enter our system

    Account for test：

    Teacher:

    Username: jenny Password: 123456

    Students (Or you can register a new account by yourself):

Username: jiachenx Password: 123456

Username: lixinlin Password: 123456

11. Please use *User Guide(Application)* to get the full detail about how use our system