

# CVB Release 4 Installation Doc

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## Introduction

Connected Vehicle Blueprint can be flexibly deployed in physical machines, virtual machines, containers and other environments.

TARS framework is an important open source component of Connected Vehicle Blueprint, which can efficiently complete the massive deployment and governance of micro-services.

## License

Apache License v2.0

## How to use this document

The document includes details of prerequisites /pre-installation, installation and uninstalls steps.

The prerequisites and pre-installation software and hardware should be ready before executing the installation steps.

## Deployment Architecture

Due to the hardware source limitation, Connected Vehicle Blueprint is deployed in three Virtual Machines in Amazon Web Service.

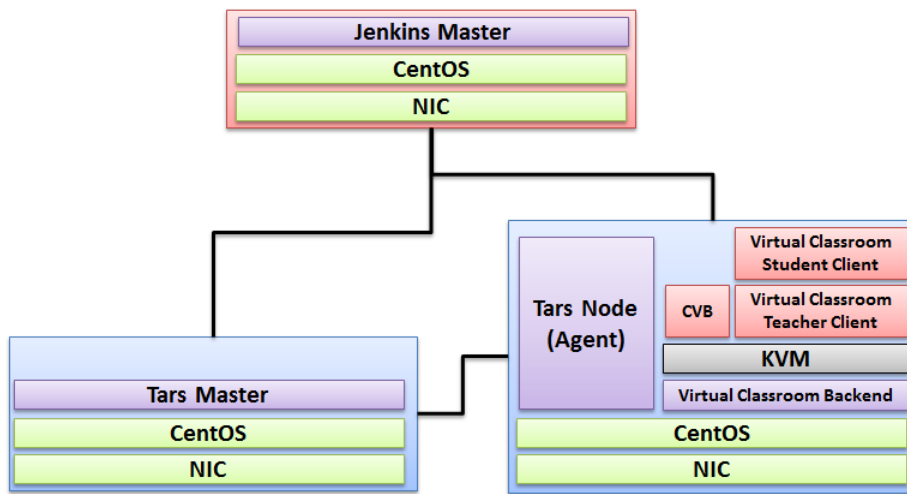
(Visit [CI Lab Environment Setup](#) if you want to set up connected vehicle blueprint in CI Lab.)

The following picture depicts the deployment architecture.

Node-0: Deploy Jenkins Master.

Node-1: Deploy Tars Master Node.

Node-2: Deploy Tars Slave(Node) and the connected vehicle applications.



## Pre-Installation Requirements

### Hardware Requirements

#### Minimum Hardware Requirements

Hostname	Core	RAM	HDD	NIC	Role
Node-0	8	16GB	50GB	1GB	Jenkins Master
Node-1	8	16GB	50GB	1GB	Tars Framework 2.4.13
Node-2	8	16GB	100GB	1GB	Tars Node (CVB + Type4 Application + Virtual Classroom Teacher Client + Virtual Classroom Student Client)

#### Recommended Hardware Requirements

Hostname	Core	RAM	HDD	NIC	Role
Node-0	8	32GB	2TB	10GB	Jenkins Master
Node-1	8	48GB	2TB	10GB	Tars Framework 2.4.13
Node-2	8	48GB	2TB	10GB	Tars Node (CVB + Type4 Application + Virtual Classroom Teacher Client + Virtual Classroom Student Client)

## Software Prerequisites

- CentOS 7.8
- MySQL Ver 14.14 Distrib 5.6.26
- OpenStack: Rocky
- k8s:1.15.0

## Database Prerequisites

N/A

## Other Installation Requirements

N/A

# Installation High-Level Overview

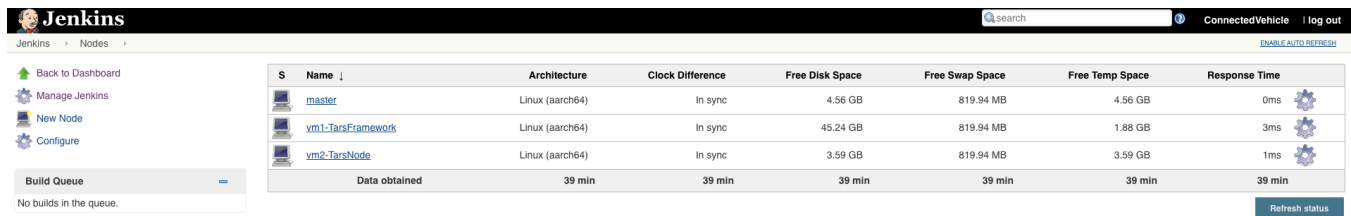
## Upstream Deployment Guide

### Installation Step by Step

#### Step1: Install Jenkins

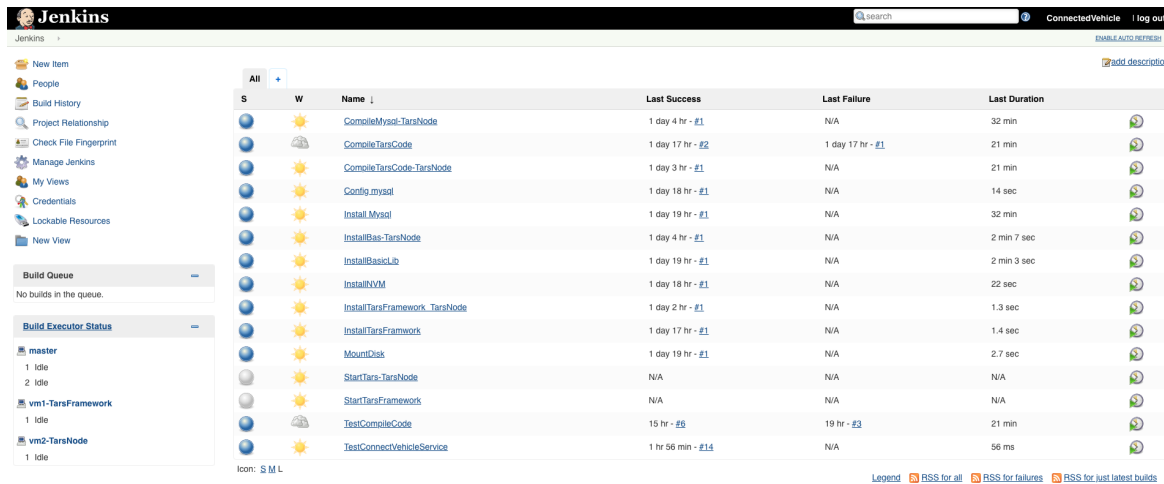
Refer to the following link for installing Jenkins Mater and connect to Jenkins Slave.

[https://github.com/qiuxin/Connected-Vehicle/blob/master/Doc/CI\\_Environment\\_Setup.md](https://github.com/qiuxin/Connected-Vehicle/blob/master/Doc/CI_Environment_Setup.md)



The screenshot shows the Jenkins 'Nodes' page. On the left, there's a sidebar with navigation links: 'Back to Dashboard', 'Manage Jenkins', 'New Node', and 'Configure'. Below this, there are sections for 'Build Queue' (showing 'No builds in the queue.') and 'Build Executor Status' (listing 'master' with 1 idle executor, 'vm1-TarsFramework' with 1 idle executor, and 'vm2-TarsNode' with 1 idle executor). The main area displays a table of nodes with columns: S, Name, Architecture, Clock Difference, Free Disk Space, Free Swap Space, Free Temp Space, and Response Time. The table lists three nodes: 'master', 'vm1-TarsFramework', and 'vm2-TarsNode', all with Linux (aarch64) architecture and 'In sync' clock difference. A 'Refresh status' button is at the bottom right.

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	master	Linux (aarch64)	In sync	4.56 GB	819.94 MB	4.56 GB	0ms
	vm1-TarsFramework	Linux (aarch64)	In sync	45.24 GB	819.94 MB	1.88 GB	3ms
	vm2-TarsNode	Linux (aarch64)	In sync	3.59 GB	819.94 MB	3.59 GB	1ms
Data obtained		39 min	39 min	39 min	39 min	39 min	39 min



The screenshot shows the Jenkins 'Build History' page. The left sidebar is similar to the previous screenshot but includes 'New Item' and 'People' links. The main area displays a table of build history with columns: S, W, Name, Last Success, Last Failure, and Last Duration. The table lists various build jobs like 'CompileMySql-TarsNode', 'CompileTarsCode', 'CompileTarsCode-TarsNode', 'Config.mysql', 'Install.MySql', 'InstallBao-TarsNode', 'InstallBasicLib', 'InstallVVM', 'InstallTarsFramework\_TarsNode', 'InstallTarsFramework', 'MountDisk', 'StartTars-TarsNode', 'StartTarsFramework', 'TestConsoleCode', and 'TestConnectVehicleService'. A legend at the bottom indicates icons for Success (S), Message (M), and Failure (L).

S	W	Name	Last Success	Last Failure	Last Duration
		CompileMySql-TarsNode	1 day 4 hr - #1	N/A	32 min
		CompileTarsCode	1 day 17 hr - #2	1 day 17 hr - #1	21 min
		CompileTarsCode-TarsNode	1 day 3 hr - #1	N/A	21 min
		Config.mysql	1 day 18 hr - #1	N/A	14 sec
		Install.MySql	1 day 19 hr - #1	N/A	32 min
		InstallBao-TarsNode	1 day 4 hr - #1	N/A	2 min 7 sec
		InstallBasicLib	1 day 19 hr - #1	N/A	2 min 3 sec
		InstallVVM	1 day 18 hr - #1	N/A	22 sec
		InstallTarsFramework_TarsNode	1 day 2 hr - #1	N/A	1.3 sec
		InstallTarsFramework	1 day 17 hr - #1	N/A	1.4 sec
		MountDisk	1 day 19 hr - #1	N/A	2.7 sec
		StartTars-TarsNode	N/A	N/A	N/A
		StartTarsFramework	N/A	N/A	N/A
		TestConsoleCode	15 hr - #6	19 hr - #3	21 min
		TestConnectVehicleService	1 hr 56 min - #14	N/A	56 ms

#### Step2: Install Tarsframework

Refer to the following link for installing Tarsframework.

[https://tarscloud.github.io/TarsDocs\\_en/installation/source.html](https://tarscloud.github.io/TarsDocs_en/installation/source.html)

##### 1. Dependency install

```
yum install -y glibc-devel gcc gcc-c++ bison flex make cmake psmisc ncurses-devel zlib-devel openssl openssl-devel
```

```
## install mysql
wget -i -c http://dev.mysql.com/get/mysql57-community-release-el7-10.noarch.rpm
yum -y install mysql57-community-release-el7-10.noarch.rpm
yum -y install mysql-community-server
yum -y install mysql-devel
```

If you have problems to install mysql with the above step, add the new mysql repository to local server with this yum command and then re-run the previous commands.

```
sudo yum localinstall https://dev.mysql.com/get/mysql57-community-release-el7-10.noarch.rpm
```

```
yum install mariadb-server -y
```

```
## Configure mysql
systemctl start mariadb.service
systemctl enable mariadb.service
systemctl status mariadb.service
mysql -u root -p
```

```
grep "password" /var/log/mariadb/mariadb.log
```

```
ALTER USER 'root'@'localhost' IDENTIFIED BY '{your passwd}';
flush privileges;
```

## 2. Install develop environment for Tars

```
yum install -y npm
npm i -g pm2
```

```
wget -qO- https://raw.githubusercontent.com/creationix/nvm/v0.33.11/install.sh | bash
source ~/.bashrc
```

```
nvm install v8.11.3
npm install -g pm2 --registry=https://registry.npm.taobao.org
```

```
mkdir Tars
cd Tars
git clone https://github.com/TarsCloud/TarsFramework.git --recursive
cd TarsFramework/build
chmod u+x build.sh
./build.sh prepare
./build.sh all
```

```
###Recompile if needed.###
```

```
./build.sh cleanall
./build.sh all
```

Change to user root and create the installation directory.

```
cd /usr/local
mkdir tars
mkdir app
chown ${normal user}:${normal user} ./tars/
chown ${normal user}:${normal user} ./app/
```

```
cd
cd Tars/TarsFramework/build/
./build.sh install or make install
```

The default install path is /usr/local/tars/cpp  
If you want to install on different path:

```
**modify tarscpp/CMakeLists.txt**
**modify TARS_PATH in tarscpp/servant/makefile/makefile.tars**
**modify DEMO_PATH in tarscpp/servant/script/create_tars_server.sh**
```

## 3. Tars framework Installation

```
3.0 Firewall setup
firewall-cmd --zone=public --permanent --add-service=http
firewall-cmd --add-port 3000/tcp
firewall-cmd --add-port 3001/tcp
firewall-cmd --add-port 3306/tcp
```

### 3.1. Add user

```
mysql -u root -p
grant all on *.* to 'tarsAdmin'@'%' identified by 'Tars@2019' with grant option;
grant all on *.* to 'tarsAdmin'@'172.22.195.10' identified by 'Tars@2019' with grant option;
grant all on *.* to 'tarsAdmin'@'Node-1' identified by 'Tars@2019' with grant option;
flush privileges;
```

### 3.2 setup mysql privileges

```
mysql -u root -p
>use mysql
>select Host from user where User='root';
if shown as "localhost"we can update as follwing command

>update user set host = '%' where user ='root';
>FLUSH PRIVILEGES;
'%update to the host IPand then use mysql -u root -p --host '%ip' change back'%'
```

```
cd /Tars
git clone https://github.com/TarsCloud/TarsWeb.git
mv TarsWeb web
cp -rf web /usr/local/tars/cpp/deploy/
cd /usr/local/tars/cpp/deploy
chmod a+x linux-install.sh
./linux-install.sh MYSQL_HOST MYSQL_ROOT_PASSWORD INET REBUILD(false[default]/true) SLAVE(false[default]/true)
./linux-install.sh 192.168.1.10 our_PW eno1 false false admin 3306
```

The following is the picture for Tars Framework website.

TARS

服务管理 运维管理

中文

admin

tars

tarspatch

tarsconfig

tarsnotify

tarslog

tarsstat

tarsproperty

tarsqueryproperty

tarsquerystat

CVApp

HelloService

服务管理 应用配置

服务列表

服务	节点	启用Set	设置状态	当前状态	进程ID	版本	发布时间	操作
tarsconfig	172.31.10.49	不启用	Active	Active	26572		Invalid date	编辑 重启 停止 管理Servant 更多命令
tarslog	172.31.10.49	不启用	Active	Active	26725	52	2019-11-02 12:20:44	编辑 重启 停止 管理Servant 更多命令
tarsnotify	172.31.10.49	不启用	Active	Active	26726	53	2019-11-02 12:21:47	编辑 重启 停止 管理Servant 更多命令
tarspatch	172.31.10.49	不启用	Active	Active	26641		Invalid date	编辑 重启 停止 管理Servant 更多命令
tarsproperty	172.31.10.49	不启用	Active	Active	26744	54	2019-11-02 12:22:39	编辑 重启 停止 管理Servant 更多命令
tarsqueryproperty	172.31.10.49	不启用	Active	Active	26760	55	2019-11-02 12:23:26	编辑 重启 停止 管理Servant 更多命令
tarsquerystat	172.31.10.49	不启用	Active	Active	26768	56	2019-11-02 12:24:36	编辑 重启 停止 管理Servant 更多命令
tarsstat	172.31.10.49	不启用	Active	Active	26782	58	2019-11-02 12:26:07	编辑 重启 停止 管理Servant 更多命令

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TARS

服务管理 运维管理

中文

admin

tars

tarspatch

tarsconfig

tarsnotify

tarslog

tarsstat

tarsproperty

tarsqueryproperty

tarsquerystat

CVApp

HelloService

服务管理 发布管理 服务配置 服务监控 特性监控 接口调试

服务列表

服务	节点	启用Set	设置状态	当前状态	进程ID	版本	发布时间	操作
HelloService	172.31.14.160	不启用	Active	Active	7539	61	2019-11-03 07:22:39	编辑 重启 停止 管理Servant 更多命令

服务实时状态

时间	服务ID	线程ID	结果
2019-11-03 07:22:39	CVApp>HelloService_172.31.14.160		patch CVApp>HelloService succ, version 61
2019-11-03 07:22:39	CVApp>HelloService_172.31.14.160	281472855198192	stop
2019-11-03 07:22:39	CVApp>HelloService_172.31.14.160	281472827542000	restart
2019-11-03 06:18:15	CVApp>HelloService_172.31.14.160	281473158367728	stop
2019-11-03 06:18:15	CVApp>HelloService_172.31.14.160	281472855198192	restart
2019-11-03 06:18:14	CVApp>HelloService_172.31.14.160		patch CVApp>HelloService succ, version 60
2019-11-03 04:09:09	CVApp>HelloService_172.31.14.160	281473158367728	restart
2019-11-03 04:09:08	CVApp>HelloService_172.31.14.160		patch CVApp>HelloService succ, version 59

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### Step3: Tars Node

Refer to the following link for installing Tarsnode and connect Tarsnode to Tarsframework.

[https://tarscloud.github.io/TarsDocs\\_en/installation/source.html](https://tarscloud.github.io/TarsDocs_en/installation/source.html)

Step4: Launch CI jobs

Create CI jobs and launch CI jobs in the following way.

The detail of the Jenkins script is depicted in the Test Document.

[CVB Test Doc for R3](#)

Jenkins

Search

ConnectedVehicle

log out

Jenkins

New Item

People

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Credentials

Lockable Resources

New View

Build Queue

No builds in the queue.

Build Executor Status

master

1 idle

2 idle

vm1-TarsFramework

1 idle

vm2-TarsNode

1 idle

All

+

S	W	Name	Last Success	Last Failure	Last Duration
		CompteMysql-TarsNode	1 day 4 hr - #1	N/A	32 min
		CompteTarsCode	1 day 17 hr - #2	1 day 18 hr - #1	21 min
		CompteTarsCode-TarsNode	1 day 3 hr - #1	N/A	21 min
		Config-mysql	1 day 18 hr - #1	N/A	14 sec
		InstallMysql	1 day 19 hr - #1	N/A	32 min
		InstallBaz-TarsNode	1 day 4 hr - #1	N/A	2 min 7 sec
		InstallBasicLib	1 day 19 hr - #1	N/A	2 min 3 sec
		InstallKVM	1 day 18 hr - #1	N/A	22 sec
		InstallTarsFramework-TarsNode	1 day 2 hr - #1	N/A	1.3 sec
		InstallTarsFramework	1 day 17 hr - #1	N/A	1.4 sec
		MountDisk	1 day 19 hr - #1	N/A	2.7 sec
		StartTars-TarsNode	N/A	N/A	N/A
		StartTarsFramework	N/A	N/A	N/A
		TestCompteCode	16 hr - #6	19 hr - #3	21 min
		TestConnectVehicleService	1 min 57 sec - #15	N/A	59 ms

Legend

RSS for all

RSS for failures

RSS for just latest builds

Jenkins

TestCompteCode

General

Source Code Management

Build Triggers

Build Environment

Build

Post-build Actions

Build after other projects are built

Build periodically

Schedule

0 12 \* \* \*

Spread load evenly by using "H 12 \* \* \*" rather than "0 12 \* \* \*"

Would last have run at Sunday, November 3, 2019 12:00:08 PM UTC; would next run at Monday, November 4, 2019 12:00:08 PM UTC.

GitHub hook trigger for GITScm polling

Pol SCM

Build Environment

Delete workspace before build starts

Use secret text(s) or file(s)

About the build if it's stuck

Add timestamps to the Console Output

Inspect build log for published Grade build scans

With Ant

Build

Execute shell

Command

cd /usr/local/robert/testCompteCode  
git clone -o cco https://github.com/robert/Tars.git  
cd /usr/local/robert/testCompteCode/Tars  
git submodule update --init --recursive  
cd /usr/local/robert/testCompteCode/Tars/framework/build  
chmod u+x build.sh  
./build.sh all  
rm -rf /usr/local/robert/testCompteCode/Tars

Save

Apply

Advanced...

Verifying the Setup

N/A

Developer Guide and Troubleshooting

Uninstall Guide

- 1. Stop all tars processes

```
/usr/local/app/tars/tars-stop.sh
```

- 2. Delete files

```
rm -rf /usr/local/app/tars
```

```
rm -rf /usr/local/app/patches
```

```
rm -rf /usr/local/app/web
```

```
rm -rf /usr/local/tars
```

### 3. Delete crontab

```
crontab -e
```

```
**Delete this line " * * * * * /usr/local/app/tars/tarsnode/util/monitor.sh ***
```

## Troubleshooting

### 1. You can't deploy service on IP 127.0.0.1 for the following reasons:

- a) Each service has at least one obj to serve foreign clients;
- b) Each service has a obj for administration, it binds to ip 127.0.0.1 and the same port which servant obj binds to.

### 2. After executing of tars\_start.sh, please execute command ps -ef|grep tars to check that the core service processes of Tars are alive, i.e., tarsregistry, tarsAdminRegistry, tarsnode, tarsconfig and tarspatch.

### 3. The paths in which services deployed as below:

- a) Log file path: /usr/local/app/tars/app\_log/\${Application}/\${ServiceName}/, such as  
/usr/local/app/tars/app\_log/Test/HelloServer/
- b) Executable file path: /usr/local/app/tars/tarsnode/data/\${Application}.\${ServiceName}/bin/, such as  
/usr/local/app/tars/tarsnode/data/Test.HelloServer/bin/
- c) Template config file path: /usr/local/app/tars/tarsnode/data/\${Application}.\${ServiceName}/conf/, such as  
/usr/local/app/tars/tarsnode/data/Test.HelloServer/conf/
- d) Cache file path: /usr/local/app/tars/tarsnode/data/\${Application}.\${ServiceName}/data/, such as  
/usr/local/app/tars/tarsnode/data/Test.HelloServer/data/

### 4. How to check logs

For example, there will be a log file named Test.HelloServer.log in directory  
/usr/local/app/tars/app\_log/Test/HelloServer/. If something failed, please check it.

### 5. tarsnode can not run java server: cannot execute java

Please restart tarsnode after install jdk  
/usr/local/app/tars/tarsnode/util/start.sh

## Maintenance

Blueprint Package Maintenance

## Frequently Asked Questions

N/A

## License

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## References

N/A

## Definitions, acronyms and abbreviations

N/A