Installation Guide for RainbowDB and PhxSQL

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1 Introduction

This document is provided to serve as a installation guide for the installation of RainbowDB and PhxSQL based on Linux Suse.

2 Installation Manual for RainbowDB

2.1 Installation Procedure

2.1.1 Download the Rainbow package from git

Step1. Add a new test user.

```
root #: useradd –m –d /home/ test
root #: passwd test
test #: ssh-keygen –t rsa // use the default options to authorize the user
```

Step2. Ping code.huawei.com.

Add the name-server information in the /etc/resolv.conf file.

Step3. Start downloading files.

```
#: Git clone git@code.hauwei.com:D-Matrix/Rainbow.git --recursive
#: Git tag // show the list of current tags publicly available, The current version is V100R002C02B101
```

The downloaded files are stored in 10.122.192.116:/home/ptadm/Rainbow0221.tar

2.1.2 Prepare compilation environment

(1) Make sure **GO** is installed.

```
#: go --version
```

If not installed yet, download go.1.7.linuxamd.tar.gz from samba file server.

Set the environment path for **GO**.

```
#: go env // verify the go environment variable
*update the variable accordingly
```

export GOROOT=home/test*$go*

export GOPATH=home/test*$Rainbow*

export PATH=home/test*$gobin*:$PATH

```
export GOROOT=home/test$go
export GOPATH=home/test$Rainbow
export PATH=home/test$gobin:$PATH
```

(2) Make sure **gcc**, **g++** are using the correct version

If not qualified, remove the old version and download the new rpm tar files from samba file server.

#: cd /usr/bin

#: rm cpp

#: rm c++

Install the updated versions of **gcc** and **g++.**

#: rpm –ihv gcc47-c++-*$new_version.rpm*

***#:* ln –s gcc-4.7 cc** // relink cc

***#:* ln –s g++-4.7 c++** // relink c++

***#:* ln –s cpp-4.7 cpp** // relink cpp

(3) Make sure **autoconf** and **automake** are on the right version.

#: rpm –qa | grep autoconf

#: rpm –qa | grep automake

If exists, remove them and download the new rpm files from samba file server.

#: rpm –e automake-*$version*

#: rpm –e autoconf-*$version*

Then install the new autoconf and automake.

#: rpm –ihv automake-*$new_version*.rpm

#: rpm –ihv autoconf-*$new_version*.rpm

(4) Set the environment variables for **cmake** and **bison.**

export PATH=home/test*$cmake_bin*:$PATH

export PATH=home/test*$bison_bin*:$PATH

2.1.3 Compile

- If download the source files from git in a recursive way, add the **aclocal** path.

```
export ACLOCAL_PATH=/usr/bin/aclocal
```

If everything is going well, make now.

```
#: make –sj //silent parallel if memory permitted
```

or

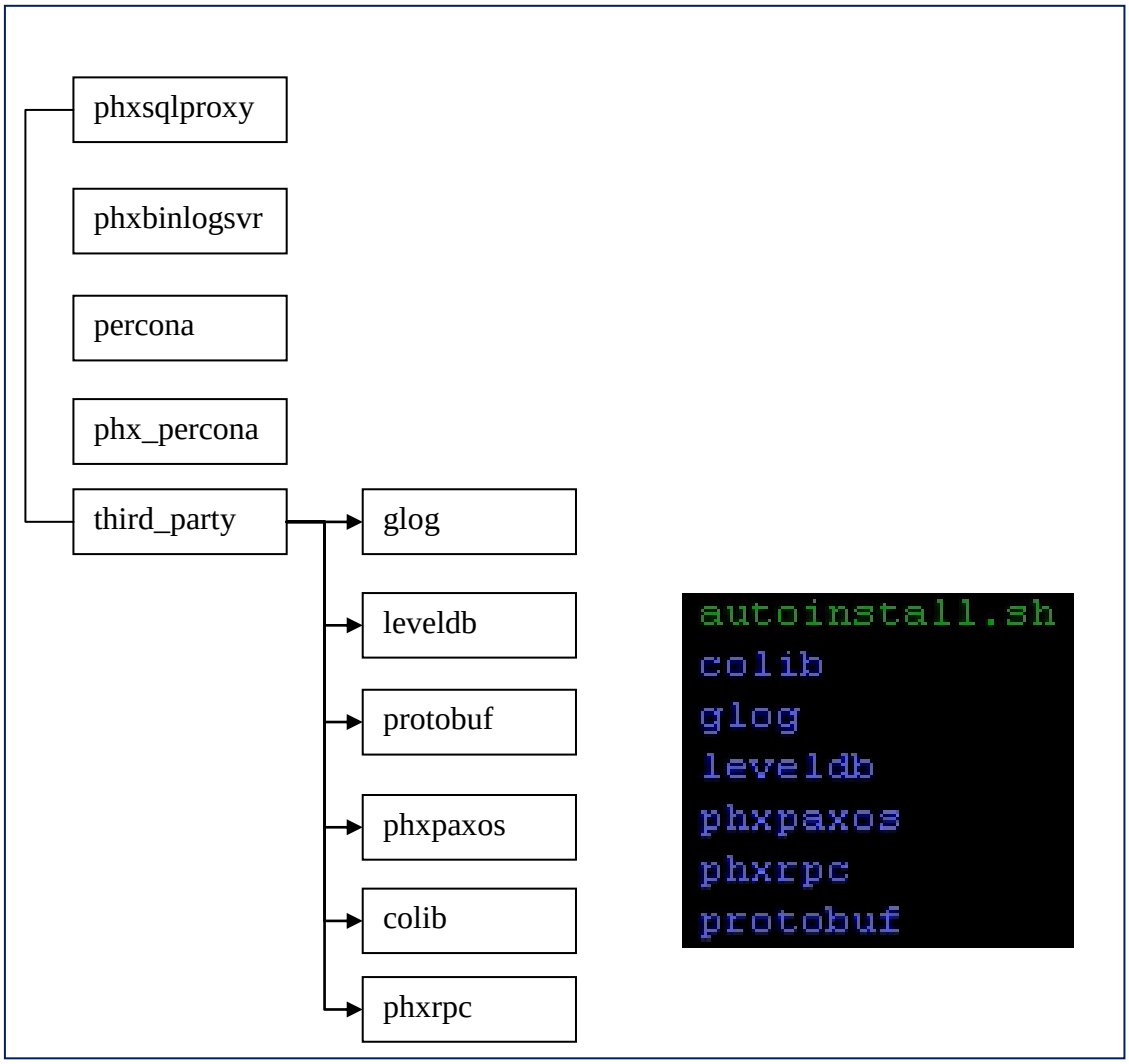
```
#: make –j4 // avoid an internal error due to insufficient memory
```

Then make install

```
#: make install
```

3 Installation Manual for PhxSQL

3.1 Code tree of PhxSQL



3.2 Pre-installation Tasks

3.2.1 Download third parties

PhxSQL needs six third party libs under phxsql/third_party directory. Some of the third parties can be download automatically by adding the **recursive-submodule** option when **git clone.**

(1) Glog

(2) Leveldb

(3) *Protobuf – *Protocol Buffers: Google's data interchahnge format*
https://github.com/google/protobuf/blob/master/src/README.md

(4) Phxpaxos: *http://github.com/tencent-wechat/phxpaxos*

(5) Colib: *http://github.com/tencent-wechat/libco*

(6) Phxrpc: *http://github.com/tencent-wechat/phxrpc*

- Configure **glog** and **Protobuf** with –fPIC**.**
- Specify prefix.

```
#: ./configure CXXFLAGS=-fPIC prefix=/home/ptadm/PhxSql/third_party/glog
#: ./configure CXXFLAGS=-fPIC prefix=/home/ptadm/PhxSql/third_party/protobuf
```

3.2.2 Download percona

(1) Download **percona-server-5.6.31-77.0.tar.gz**

(2) Move the file to **PhxSQL** main directory and rename it as **percona**.

3.2.3 Preparation for installation environment

```
#: .autoinstall.sh –prefix=$install_path
#: make && make install
#: make package //generate phxsql-$version.tar.gz file for deployment
```

3.2.4 Installation Procedure

(1) Distribute phxsql.tar.gz to all of the other hosts and untar it;

```
#: tar –xvf phxsql.tar.gz
#: cd phxsql/tools
```

(2) Install

```
#: python install.py –help //get the installation help, then install
```

(3) Set rpc for master initialization

```
#: ./phxbinlogsvr_tools_phxrpc –f InitBinlogSvrMaster –h "10.122.192.116, 10.122.192.117, 10.122.192.118" –P 54321
```

(4) Check the status of cluster

```
#: mysql –uroot –h "10.122.192.116" –P 54321
```

3.3 Test the connection

```
#: cd phxsql/tools
#: test_phxsql.sh 54321 10.122.192.116 10.122.192.117 10.122.192.118
```

3.4 Configuration info

(1) **My.conf**: the configuration of MySQL

*modify **tools/etc_template/my.conf** before installation;

*modify **etc/my.conf** after installation;

(2) **Phxbinlogsvr.conf**

Section name	Key name	comment
AgentOption	AgentPort	Port for the connection of binlogsvr and MySQL
	EventDataDir	Directory where to store the binlogsvr data
	MaxFileSize	File size per data of phxbinlogsvr, the unit is B
	MasterLease	Lease length of master, the unit is second
	CheckPointTime	The data before CheckPointTime will be deleted by phxbinlogsvr, but it will not be deleted if some other PhxSQL nodes have not learned yet, the unit is minute
	MaxDeleteCheckPointFileNum	The maximum number of files deleted each time by phxbinlogsvr
	FollowIP	Enabled if it is a follower node and will learn binlog from this `FollowIP`, this node will not vote
PaxosOption	PaxosLogPath	Directory where to store paxos data
	PaxosPort	Port for paxos to connect each other
	PacketMode	The maximum size of paxos log for PhxPaxos,1 means 100M, but the network timeout will be 1 minute, 0 means 50M and network timeout is 2s(changed in dynamic).
	UDPMaxSize	Our default network use udp and tcp combination, a message we use udp or tcp to send decide by a threshold. Message size under UDPMaxSize we use udp to send.
Server	IP	IP for phxbinlogsvr to listen
	Port	Port for phxbinlogsvr to listen
	LogFilePath	Directory to store log
	LogLevel	Log level of phxbinlogsvr

(3) **Phxsqlproxy.conf**

Section	Key	comment
Server	IP	IP for phxsqlproxy to listen
	Port	Port for phxsqlproxy to listen
	LogFilePath	Directory to store log
	LogLevel	Log level of phxbinlogsvr
	MasterEnableReadPort	Enable readonly-port in master node. If set to 0, master will forwarding readonly-port requests to one of slaves.
	TryBestIfBinlogsvrDead	After the local phxbinlogsvr is dead, phxsqlproxy will try to get master information from phxbinlogsvr on other machine, if this option set to 1.

4 Test Plans

[to be added]

5 Reference Documents

[1] http://3ms.huawei.com/hi/group/1502307/wiki_4613741.html

[2] http://3ms.huawei.com/hi/group/1502307/wiki_4616445.html

[3] **PhxSQL:** https://github.com/tencent-wechat/phxsql
https://github.com/tencent-wechat/phxsql/blob/master/README.zh_cn.md

[4] third-party **phxpaxos**: http://github.com/tencent-wechat/phxpaxos

[5] third-party **phxrpc**: http://github.com/tencent-wechat/phxrpc

[6] third-party **libco**: http://github.com/tencent-wechat/libco