# GBase 8s数据库连接 – Perl

## 一、Linux下通过DBD::GBasedbt连接到GBase 8s数据库

操作系统：RHEL 7U6 64bit

软件需求：

1，GBase 8s CSDK

2，perl-5.16.3

3，DBD-GBasedbt-2018.1031(Base on: DBD-Informix-2018.1031)

### 1，系统环境确认

#### 1.1 perl版本

Linux下root用户通过rpm确认perl、perl-DBI、perl-Test-Pod、perl-Test-Pod-Coverage及perl-ExtUtils-MakeMaker均已经安装，如下：

[root@rhel7u6 perl]# **rpm -qa perl perl-DBI perl-Test-Pod perl-Test-Pod-Coverage perl-ExtUtils-MakeMaker**

perl-5.16.3-293.el7.x86\_64

perl-Test-Pod-1.48-3.el7.noarch

perl-ExtUtils-MakeMaker-6.68-3.el7.noarch

perl-DBI-1.627-4.el7.x86\_64

perl-Test-Pod-Coverage-1.08-21.el7.noarch

#### 1.2 GBase 8s CSDK已经安装

Linux下gbasedbt用户通过esql -V命令确认GBase 8s CSDK已经安装，如下：

 [gbasedbt@rhel7u6 ~]$ **esql -V**

GBase CSDK Version 4.10, GBASE-ESQL Version 4.10.FC4G1\_3.0.0

Software Serial Number AAA#B000000

### 2，DBD-GBasedbt编译安装

#### 2.1 环境变量加载

加载GBase 8s CSDK环境变量，包含连接到GBase 8s数据库所需的GBASEDBTDIR、GBASEDBTSERVER、PATH、LD\_LIBRARY\_PATH，以及选用的字符集DB\_LOCALE、CLIENT\_LOCALE、LANG等。环境变量内容可保存为配置文件，如：gbase8s\_csdk\_env，以供调用。

export GBASEDBTDIR=/opt/gbasedbt # GBase 8s CSDK安装目录

export GBASEDBTSERVER=gbase01 # 远程GBase 8s数据库实例名称

export PATH=$GBASEDBTDIR/bin:$PATH:$HOME/bin

export DB\_LOCALE=zh\_CN.utf8

export CLIENT\_LOCALE=zh\_CN.utf8

export LD\_LIBRARY\_PATH=$GBASEDBTDIR/lib:$GBASEDBTDIR/lib/esql:$LD\_LIBRARY\_PATH

# 以下4个环境变量仅用于编译时的测试，testdb应当存在

export DBI\_DBNAME=testdb

export DBD\_GBASEDBT\_DATABASE=testdb

export DBD\_GBASEDBT\_USERNAME=gbasedbt

export DBD\_GBASEDBT\_PASSWORD=GBase123

#### 2.2 编译安装DBD-GBasedbt

将DBD-GBasedbt-2018.1031.tar.gz上传至GBase 8s CSDK所在的服务器上，使用root用户解压，加载环境变量文件gbase8s\_csdk\_env。

[root@rhel7u6 perl]# **. gbase8s\_csdk\_env**

[root@rhel7u6 perl]# **tar -zxvf DBD-GBasedbt-2018.1031.tar.gz**

在生成的DBD-GBasedbt-2018.1031目录里执行perl Makefile.PL

 [root@rhel7u6 DBD-GBasedbt-2018.1031]# **perl Makefile.PL**

过程如下：

\*\*\* ExtUtils::AutoInstall version 0.63

\*\*\* Checking for dependencies...

[Core Features]

- DBI ...loaded. (1.627 >= 1.607)

[High Resolution Timing]

- Time::HiRes ...loaded. (1.9725)

[POD Format Testing]

- Test::Pod ...loaded. (1.48)

\*\*\* ExtUtils::AutoInstall configuration finished.

Configuring GBasedbt Database Driver for Perl DBI Version 2018.1031 (2018-10-31) (aka DBD::GBasedbt)

 You are using DBI version 1.627 and Perl version 5.016003

Remember to actually read the README file!

Perl: /usr/bin/perl v5.016003 x86\_64-linux-thread-multi dl\_dlopen.xs

System: linux x86-038.build.eng.bos.redhat.com 3.10.0-862.2.3.el7.x86\_64 #1 smp mon apr 30 12:37:51 edt 2018 x86\_64 x86\_64 x86\_64 gnulinux

\*\*\* Ideally, you should upgrade to Perl version 5.026002 or later.

\*\*\* Ideally, you should upgrade to DBI version 1.642 or later.

Using GBASEDBTDIR=/opt/gbasedbt and ESQL/C compiler esql

Using GBase CSDK Version 4.10, GBASE-ESQL Version 4.10.FC4G1\_3.0.0 from /opt/gbasedbt

Beware: DBD::GBasedbt is not yet fully aware of all the GBasedbt data types.

Assert macro will be disabled!

lib/DBD/GBasedbt/Defaults.pm written OK

esqlinfo.h written OK

Testing whether your GBasedbt test environment will work...

ESQLTEST Program Running:

@(#)$Id: esqltest.ec,v 2015.1 2014/07/28 07:16:36 jleffler Exp $

 $GBASEDBTDIR is set to '/opt/gbasedbt'.

 $GBASEDBTSERVER is set to 'gbase01'.

 $DBI\_DBNAME set to 'testdb'.

 $DBD\_GBASEDBT\_DATABASE set to 'testdb'.

 $DBD\_GBASEDBT\_DATABASE2 unset - defaulting to 'testdb'.

 $DBD\_GBASEDBT\_USERNAME is set to 'gbasedbt'.

 $DBD\_GBASEDBT\_USERNAME2 is unset - defaulting to 'gbasedbt'.

 $DBD\_GBASEDBT\_PASSWORD is set.

 $DBD\_GBASEDBT\_PASSWORD2 is unset - defaulting to $DBD\_GBASEDBT\_PASSWORD.

Testing connection to testdb

 1: CONNECT TO 'testdb' with user info

Testing concurrent connection to testdb

 1: CONNECT TO 'testdb' with user info

Your GBasedbt environment is (probably) OK

Determining which GBasedbt libraries etc to use...

... We are going to use the GBasedbt library list:

\* /opt/gbasedbt/lib/esql/checkapi.o -lifsql -lifasf -lifgen -lifos

\* -lifgls -lifglx -lpthread -lm -ldl -lcrypt

Checking if your kit is complete...

Looks good

Using DBI 1.627 (for perl 5.016003 on x86\_64-linux-thread-multi) installed in /usr/lib64/perl5/vendor\_perl/auto/DBI/

Writing Makefile for DBD::GBasedbt

Make操作

[root@rhel7u6 DBD-GBasedbt-2018.1031]# **make**

Make install操作

[root@rhel7u6 DBD-GBasedbt-2018.1031]# **make install**

Files found in blib/arch: installing files in blib/lib into architecture dependent library tree

Installing /usr/local/lib64/perl5/auto/DBD/GBasedbt/GBasedbt.so

Installing /usr/local/lib64/perl5/auto/DBD/GBasedbt/GBasedbt.bs

Installing /usr/local/lib64/perl5/DBD/GBasedbt.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/Summary.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/TestHarness.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/Defaults.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/TechSupport.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/GetInfo.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/Metadata.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/Configure.pm

Installing /usr/local/lib64/perl5/DBD/GBasedbt/TypeInfo.pm

Installing /usr/local/lib64/perl5/Bundle/DBD/GBasedbt.pm

Installing /usr/local/share/man/man1/GBasedbtTechSupport.1

Installing /usr/local/share/man/man3/DBD::GBasedbt::Summary.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt::TestHarness.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt::Defaults.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt::TechSupport.3pm

Installing /usr/local/share/man/man3/Bundle::DBD::GBasedbt.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt::GetInfo.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt::Configure.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt::Metadata.3pm

Installing /usr/local/share/man/man3/DBD::GBasedbt::TypeInfo.3pm

Installing /usr/local/bin/GBasedbtTechSupport

Appending installation info to /usr/lib64/perl5/perllocal.pod

### 3，确认DBD::GBasedbt已经安装

通过命令查询DBD::GBasedbt组件已经安装，显示其版本号

[root@rhel7u6 ~]#  **perl -MDBD::GBasedbt -le 'print DBD::GBasedbt->VERSION'**

2018.1031

### 4，Perl通过DBI-GBasedbt连接GBase 8s数据库测试

编写测试脚本程序perl\_dbi\_gbasedbt.pl，内容如下：

#!/usr/bin/perl

use warnings;

use strict;

use DBI;

# 连接到数据库 testdb

my $dbh = DBI->connect

 (

 "DBI:GBasedbt:testdb",

 'gbasedbt',

 'GBase123',

 { PrintError => 0, RaiseError => 1, AutoCommit => 0 }

 );

# 开始事务

$dbh->do("begin");

# 删除表及创建表

my $sth\_d\_tab = $dbh->prepare("drop table if exists perl\_dbi\_gbasedbt");

$sth\_d\_tab->execute();

my $sth\_c\_tab = $dbh->prepare("create table perl\_dbi\_gbasedbt (id int, name varchar(40))");

$sth\_c\_tab->execute();

# 插入数据

my $sth\_i\_tab = $dbh->prepare("insert into perl\_dbi\_gbasedbt values(1,'测试中文输入')");

$sth\_i\_tab->execute();

# 查询数据

my $sth\_s\_tab = $dbh->prepare("select first 10 id,name from perl\_dbi\_gbasedbt");

$sth\_s\_tab->execute();

while (my $row = $sth\_s\_tab->fetchrow\_hashref())

{

 print sprintf("%d %-40s\n", $row->{id}, $row->{name});

}

# 提交事务，关闭数据库连接

$dbh->do("commit");

$dbh->disconnect();

exit 0;

perl perl\_dbi\_gbasedbt.pl执行并输出结果：

[root@rhel7u6 DBD-GBasedbt-2018.1031]# perl perl\_dbi\_gbasedbt.pl

1 测试中文输入

perl通过DBD::GBasedbt连接到GBase 8s数据库，测试成功。

## 二、Linux下通过DBD::ODBC连接到GBase 8s数据库

操作系统：RHEL7U6 64bit

软件需求：

1，GBase 8s CSDK

2，perl-5.16.3 及perl-devel-5.16.3

3，unixODBC-2.3.1

4，DBD-ODBC-1.60

### 1，系统环境确认

#### 1.1 perl、perl-devel及unixODBC版本

Linux下root用户通过rpm确认perl、perl-devel，unixODBC、unixODBC-devel均已经安装，如下：

[root@rhel7u6 ~]# **rpm -qa perl perl-devel unixODBC unixODBC-devel**

perl-5.16.3-293.el7.x86\_64

perl-devel-5.16.3-293.el7.x86\_64

unixODBC-devel-2.3.1-11.el7.x86\_64

unixODBC-2.3.1-11.el7.x86\_64

#### 1.2 GBase 8s CSDK已经安装

Linux下gbasedbt用户通过esql -V命令确认GBase 8s CSDK已经安装，如下：

[gbasedbt@rhel7u6 ~]$ **esql -V**

GBase CSDK Version 4.10, GBASE-ESQL Version 4.10.FC4G1\_3.0.0

Software Serial Number AAA#B000000

### 2，ODBC配置

#### 2.1 ODBC配置文件

修改/etc/odbc.ini配置文件，增加GBase 8s数据库连接信息

;---------------------------------------------------------------------------

; GBase ODBC Sample File

;

; File: odbc.ini

;

;---------------------------------------------------------------------------

[ODBC Data Sources]

testdb=GBase ODBC DRIVER

;

; Define ODBC Database Driver's Below - Driver Configuration Section

;

[testdb]

Driver=/opt/gbasedbt/lib/cli/iclis09b.so

Description=GBase ODBC DRIVER

Database=testdb

LogonID=gbasedbt

pwd=GBase123

Servername=gbase01

CursorBehavior=0

CLIENT\_LOCALE=zh\_CN.utf8

DB\_LOCALE=zh\_CN.utf8

TRANSLATIONDLL=/opt/gbasedbt/lib/esql/igo4a304.so

;

; UNICODE connection Section

;

[ODBC]

;uncomment the below line for UNICODE connection

;UNICODE=UCS-4

;

; Trace file Section

;

Trace=0

TraceFile=/tmp/odbctrace.out

InstallDir=/opt/gbasedbt

TRACEDLL=idmrs09a.so

#### 2.2 验证ODBC配置

加载GBase 8s CSDK环境变量，包含连接到GBase 8s数据库所需的GBASEDBTDIR、LD\_LIBRARY\_PATH，以及选用的字符集DB\_LOCALE、CLIENT\_LOCALE、LANG等。加载ODBCINI环境变量。环境变量内容可保存为配置文件，如：gbase8s\_odbc\_env，以供调用。

export GBASEDBTDIR=/opt/gbasedbt # GBase 8s CSDK安装目录

export GBASEDBTSERVER=gbase01 # 远程GBase 8s数据库实例名称

export PATH=$GBASEDBTDIR/bin:$PATH:$HOME/bin

export DB\_LOCALE=zh\_CN.utf8

export CLIENT\_LOCALE=zh\_CN.utf8

export LD\_LIBRARY\_PATH=$GBASEDBTDIR/lib:$GBASEDBTDIR/lib/esql:$LD\_LIBRARY\_PATH

export ODBCINI=/etc/odbc.ini

通过isql命令检查ODBC配置

[root@localhost ~]#  **. gbase8s\_odbc\_env**

[root@localhost ~]#  **isql -v testdb**

+---------------------------------------+

| Connected! |

| |

| sql-statement |

| help [tablename] |

| quit |

| |

+---------------------------------------+

SQL> select dbservername::varchar(40) from systables where tabid = 1;

+-----------------------------------------+

| |

+-----------------------------------------+

| gbase01 |

+-----------------------------------------+

SQLRowCount returns -1

1 rows fetched

### 3，编译安装DBD-ODBC

将DBD-ODBC-1.60.tar.gz上传至GBase 8s CSDK所在的服务器上，使用root用户解压。

[root@rhel7u6 perl]# **tar -zxvf DBD-ODBC-1.60.tar.gz**

在生成的DBD-ODBC-1.60目录里执行perl Makefile.PL

注意：需要设置LANG=C，若设置为zh\_CN.UTF-8会有个警告

[root@rhel7u6 DBD-ODBC-1.60]# **export LANG=C**

[root@rhel7u6 DBD-ODBC-1.60]# **perl Makefile.PL**

内容如下：

\*\*\*\*\*\*\*\*\*\*

 Remember to actually \*READ\* the README file!

 And re-read it if you have any problems.

\*\*\*\*\*\*\*\*\*\*

OSNAME: linux

LANG: C

ODBCHOME:

LD\_LIBRARY\_PATH: /opt/gbasedbt/lib:/opt/gbasedbt/lib/esql:/opt/gbasedbt/lib:/opt/gbasedbt/lib/esql:/opt/gbasedbt/lib:/opt/gbasedbt/lib/esql:/opt/gbasedbt/lib:/opt/gbasedbt/lib/esql:

DBROOT:

WINDIR:

II\_SYSTEM:

DBD\_ODBC\_UNICODE:

Perl: 5.016003

ExtUtils::MakeMaker: 6.68

Command line options:

 u! = undef

 w! = undef

 e! = undef

 g! = 0

 x! = undef

 o=s =

You are using a Perl configured with threading enabled.

Please read the warnings in DBI about this.

You should also be aware that on non-Windows platforms ODBC drivers come

in two forms, thread-safe and non-thread-safe drivers and you may need

to make sure you are using the right one.

Press return to continue...

Looking for odbc\_config in : nowhere

Looking for odbc\_config in (PATH) /opt/gbasedbt/bin:/opt/gbasedbt/bin:/opt/gbasedbt/bin:/opt/gbasedbt/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/root/bin:/root/bin:/root/bin:/root/bin:/root/bin

 Found odbc\_config (via odbc\_config) version 2.3.1

 odbc\_config reports --prefix=/usr

 odbc\_config reports --include-prefix=/usr/include

 odbc\_config reports --lib-prefix=/usr/lib64

 ODBC INC dir set to /usr/include via odbc\_config

 ODBC LIB dir set to /usr/lib64 via odbc\_config

Using ODBCHOME /usr

This looks like a unixodbc type of driver manager.

Looking for odbcinst

 Found odbcinst in /usr/bin

 odbcinst -j reports:

unixODBC 2.3.1

DRIVERS............: /etc/odbcinst.ini

SYSTEM DATA SOURCES: /etc/odbc.ini

FILE DATA SOURCES..: /etc/ODBCDataSources

USER DATA SOURCES..: /etc/odbc.ini

SQLULEN Size.......: 8

SQLLEN Size........: 8

SQLSETPOSIROW Size.: 8

Please note these files as they are where you define your ODBC drivers and data sources.

Looking for odbc\_config to get cflags

Adding odbc\_config --cflags "-DHAVE\_UNISTD\_H -DHAVE\_PWD\_H -DHAVE\_SYS\_TYPES\_H -DHAVE\_LONG\_LONG -DSIZEOF\_LONG\_INT=8 -I/usr/include " to CC line

Warning: LD\_LIBRARY\_PATH=/opt/gbasedbt/lib:/opt/gbasedbt/lib/esql:/opt/gbasedbt/lib:/opt/gbasedbt/lib/esql:/opt/gbasedbt/lib:/opt/gbasedbt/lib/esql:/opt/gbasedbt/lib:/opt/gbasedbt/lib/esql: doesn't include /usr/lib64

Warning: prerequisite Test::Output 1.031 not found.

Using DBI 1.627 (for perl 5.016003 on x86\_64-linux-thread-multi) installed in /usr/lib64/perl5/vendor\_perl/auto/DBI/

Using DBI 1.627 (for perl 5.016003 on x86\_64-linux-thread-multi) installed in /usr/lib64/perl5/vendor\_perl/auto/DBI/

Writing Makefile for DBD::ODBC

Warning: not all required environment variables are set.

Warning: Will not be able to run tests as you have not defined

all of DBI\_DSN, DBI\_USER and DBI\_PASS environment variables.

Make操作，make 操作的过程中有警告，暂时忽视之

[root@rhel7u6 DBD-ODBC-1.60]# **make**

Make install操作

[root@rhel7u6 DBD-ODBC-1.60]# **make install**

Files found in blib/arch: installing files in blib/lib into architecture dependent library tree

Installing /usr/local/lib64/perl5/auto/DBD/ODBC/ODBC.so

Installing /usr/local/lib64/perl5/auto/DBD/ODBC/ODBC.bs

Installing /usr/local/lib64/perl5/DBD/ODBC.pm

Installing /usr/local/lib64/perl5/DBD/ODBC/Changes.pm

Installing /usr/local/lib64/perl5/DBD/ODBC/FAQ.pm

Installing /usr/local/lib64/perl5/DBD/ODBC/TO\_DO.pm

Installing /usr/local/share/man/man3/DBD::ODBC.3pm

Appending installation info to /usr/lib64/perl5/perllocal.pod

### 4，确认DBD::ODBC已经安装

通过命令查询DBD::ODBC组件已经安装，显示其版本号

[root@rhel7u6 ~]# **perl -MDBD::ODBC -le 'print DBD::ODBC->VERSION'**

1.60

### 5，Perl通过DBD::ODBC连接GBase 8s数据库测试

编写测试脚本程序perl\_dbi\_odbc.perl，内容如下：

#!/usr/bin/perl

use warnings;

use strict;

use DBI;

# 通过ODBC连接到数据库 testdb

my $dbh = DBI->connect

 (

 "DBI:ODBC:testdb",

 'gbasedbt',

 'GBase123'

 );

# 开始事务

$dbh->do("begin");

# 删除表及创建表

my $sth\_d\_tab = $dbh->prepare("drop table if exists perl\_dbi\_gbasedbt");

$sth\_d\_tab->execute();

my $sth\_c\_tab = $dbh->prepare("create table perl\_dbi\_gbasedbt (id int, name varchar(40))");

$sth\_c\_tab->execute();

# 插入数据

my $sth\_i\_tab = $dbh->prepare("insert into perl\_dbi\_gbasedbt values(1,'测试中文输入ODBC')");

$sth\_i\_tab->execute();

# 查询数据

my $sth\_s\_tab = $dbh->prepare("select first 10 id,name from perl\_dbi\_gbasedbt");

$sth\_s\_tab->execute();

while (my $row = $sth\_s\_tab->fetchrow\_hashref())

{

 print sprintf("%d %-40s\n", $row->{id}, $row->{name});

}

# 提交事务，关闭数据库连接

$dbh->do("commit");

$dbh->disconnect();

exit 0;

perl perl\_dbi\_odbc.pl执行并输出结果：

[root@rhel7u6 DBD-ODBC-1.60]# **perl perl\_dbi\_odbc.pl**

1 测试中文输入ODBC

perl通过DBD::ODBC连接到GBase 8s数据库，测试成功。