DbVisualizer对接FusionInsight

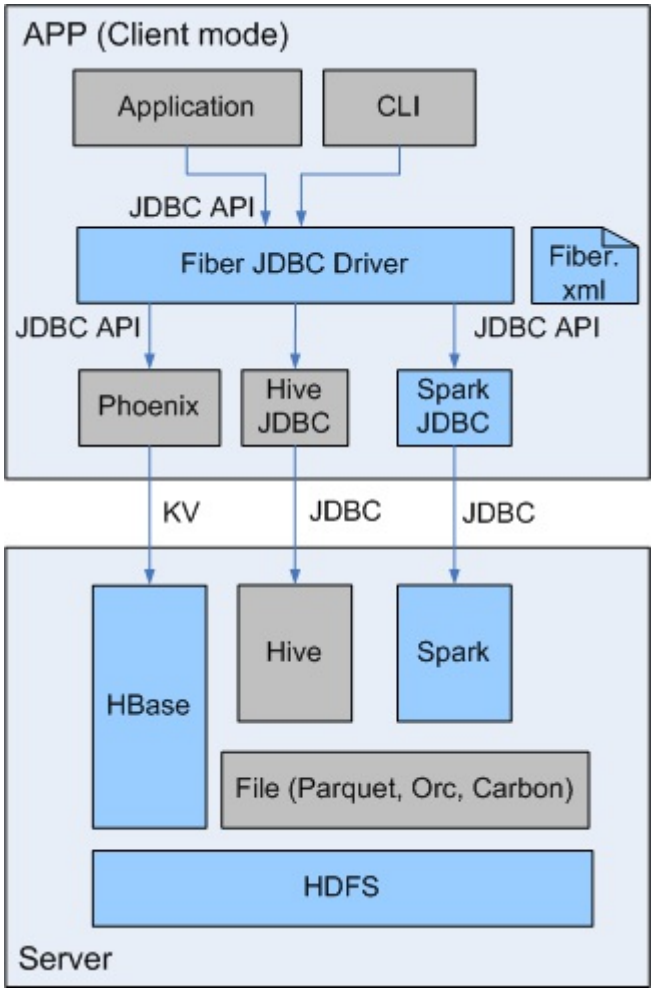
适用场景

> DbVisualizer 9.5.7 <-> FusionInsight HD V100R002C60U20
>
> DbVisualizer 10.0.1 <-> FusionInsight HD V100R002C70SPC200

说明

SQL开发工具，如DbVisualizer、DBeaver、Squirrel是数据库开发的常用选择，虽然这些工具大多不提供原生Hive、SparkSQL、Phoenix的支持，但是通过它们支持的自定义JDBC的能力，我们可以与FusionInsignt提供的Fiber组件的JDBC接口进行对接，实现这Hive、SparkSQL、Phoenix组件的统一SQL查询。

- Fiber架构图



本文介绍了DbVisualizer与FusionInsight的Fiber对接的操作步骤

DbVisualizer安装

- DbVisualizer9.5.7需要jdk1.8，下载安装jdk1.8，配置环境变量。
- 参考FusionInsight产品文档安装FusionInsight客户端，位置`/opt/hadoopclient`
- 修改C:\Windows\System32\drivers\etc\hosts文件，加入FusionInsight集群信息

```
162.1.93.101 162-1-93-101
162.1.93.102 162-1-93-102
162.1.93.103 162-1-93-103
```

- 在本地PC机上新建一个目录，将FusionInsight客户端下的fiber客户端文件夹Fiber拷贝至本地，例如C:\Fiber。
- 参考FusionInsight产品文档创建用户test，并赋予足够的权限，下载test的keytab文件user.keytab，拷贝到`C:\Fiber\conf\`文件夹下。
- 将FusionInsight客户端下jaas.conf文件和krb5.conf拷贝到`C:\Fiber\conf`目录下，文档内容如下，principal和keytab按实际填写：

```
Client {
com.sun.security.auth.module.Krb5LoginModule required
useKeyTab=true
keyTab="C:\\Fiber\\conf\\user.keytab"
principal="test"
useTicketCache=false
storeKey=true
debug=true;
};
```

- 修改fiber.xml文件配置，位置`C:\Fiber\conf\fiber.xml`

  Hive的JDBC连接

```
<jdbc>
  <identify>hive</identify>
  <describe>hive jdbc configuration</describe>
  <driverClass>org.apache.hive.jdbc.HiveDriver</driverClass>
  <securityClass>com.huawei.fiber.DefaultAuthenticationCallback</securityClass>
  <classPath>C:\\Fiber\\Hive\\config;C:\\Fiber\\Hive\\Beeline\\lib;C:\\Fiber\\Hive\\Beeline\\conf</classPath>

<jdbcUrl>jdbc:hive2://162.1.93.103:24002,162.1.93.102:24002,162.1.93.101:24002/;serviceDiscoveryMode=zooKeeper;zooKeeperNamespace=
hiveserver2;sasl.qop=auth-
conf;auth=KERBEROS;principal=hive/hadoop.hadoop.com@HADOOP.COM;user.principal=test;user.keytab=C:/Fiber/conf/user.keytab</jdbcUrl>
  <properties>
    <property>
      <name>java.security.krb5.conf</name>
      <value>C:\\Fiber\\conf\\krb5.conf</value>
    </property>
    <property>
      <name>java.security.auth.login.config</name>
      <value>C:\\Fiber\\conf\\jaas.conf</value>
    </property>
    <property>
      <name>zookeeper.server.principal</name>
      <value>zookeeper/hadoop.hadoop.com</value>
    </property>
    <property>
      <name>zookeeper.kinit</name>
      <value>C:\\Program Files (x86)\\Java\\jdk1.8.0_112\\jre\\bin\\kinit.exe</value>
    </property>
  </properties>
</jdbc>
```

  Spark的JDBC连接

```
<jdbc>
  <identify>spark</identify>
  <describe>spark jdbc configuration</describe>
  <driverClass>org.apache.hive.jdbc.HiveDriver</driverClass>
  <securityClass>com.huawei.fiber.DefaultAuthenticationCallback</securityClass>
  <classPath>C:\\Fiber\\Spark\\spark\\conf;C:\\Fiber\\Spark\\spark\\lib</classPath>
  <jdbcUrl>jdbc:hive2://ha-cluster/default;saslQop=auth-
conf;auth=KERBEROS;principal=spark/hadoop.hadoop.com@HADOOP.COM;user.principal=test;user.keytab=C:/Fiber/conf/user.keytab</jdbcUrl
>
  <properties>
    <property>
      <name>java.security.krb5.conf</name>
      <value>C:\\Fiber\\conf\\krb5.conf</value>
    </property>
    <property>
      <name>java.security.auth.login.config</name>
      <value>C:\\Fiber\\conf\\jaas.conf</value>
    </property>
    <property>
      <name>zookeeper.server.principal</name>
      <value>zookeeper/hadoop.hadoop.com</value>
    </property>
    <property>
      <name>zookeeper.kinit</name>
      <value>C:\\Program Files (x86)\\Java\\jdk1.8.0_112\\jre\\bin\\kinit.exe</value>
    </property>
  </properties>
  </jdbc>
```

  Phoenix的JDBC连接，需要增加属性 **hbase.myclient.keytab** 和 **hbase.myclient.principal**

```
<jdbc>
  <identify>phoenix</identify>
  <describe>phoenix jdbc configuration</describe>
```

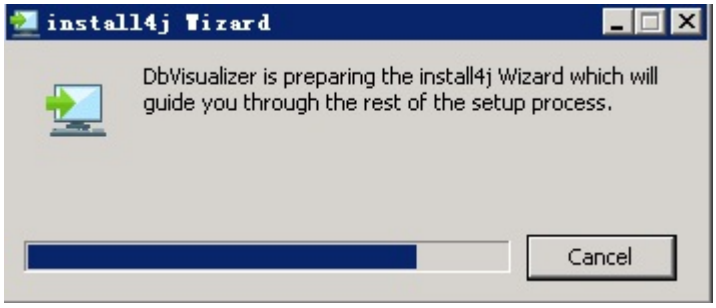
```
  <driverClass>org.apache.phoenix.jdbc.PhoenixDriver</driverClass>
  <securityClass>com.huawei.fiber.DefaultAuthenticationCallback</securityClass>
  <classPath>C:\\Fiber\\HBase\\hbase\\lib;C:\\Fiber\\HBase\\hbase\\conf</classPath>
  <jdbcUrl>jdbc:phoenix:162.1.93.101,162.1.93.102,162.1.93.103:24002:/hbase</jdbcUrl>
  <properties>
    <property>
      <name>java.security.krb5.conf</name>
      <value>C:\\Fiber\\conf\\krb5.conf</value>
    </property>
    <property>
      <name>java.security.auth.login.config</name>
      <value>C:\\Fiber\\conf\\jaas.conf</value>
    </property>
<property>
      <name>hbase.myclient.keytab</name>
      <value>C:\\Fiber\\conf\\user.keytab</value>
    </property>
<property>
      <name>hbase.myclient.principal</name>
      <value>test</value>
    </property>
    <property>
      <name>zookeeper.server.principal</name>
      <value>zookeeper/hadoop.hadoop.com</value>
    </property>
    <property>
      <name>zookeeper.kinit</name>
      <value>C:\\Program Files (x86)\\Java\\jdk1.8.0_112\\jre\\bin\\kinit.exe</value>
    </property>
  </properties>
</jdbc>
```

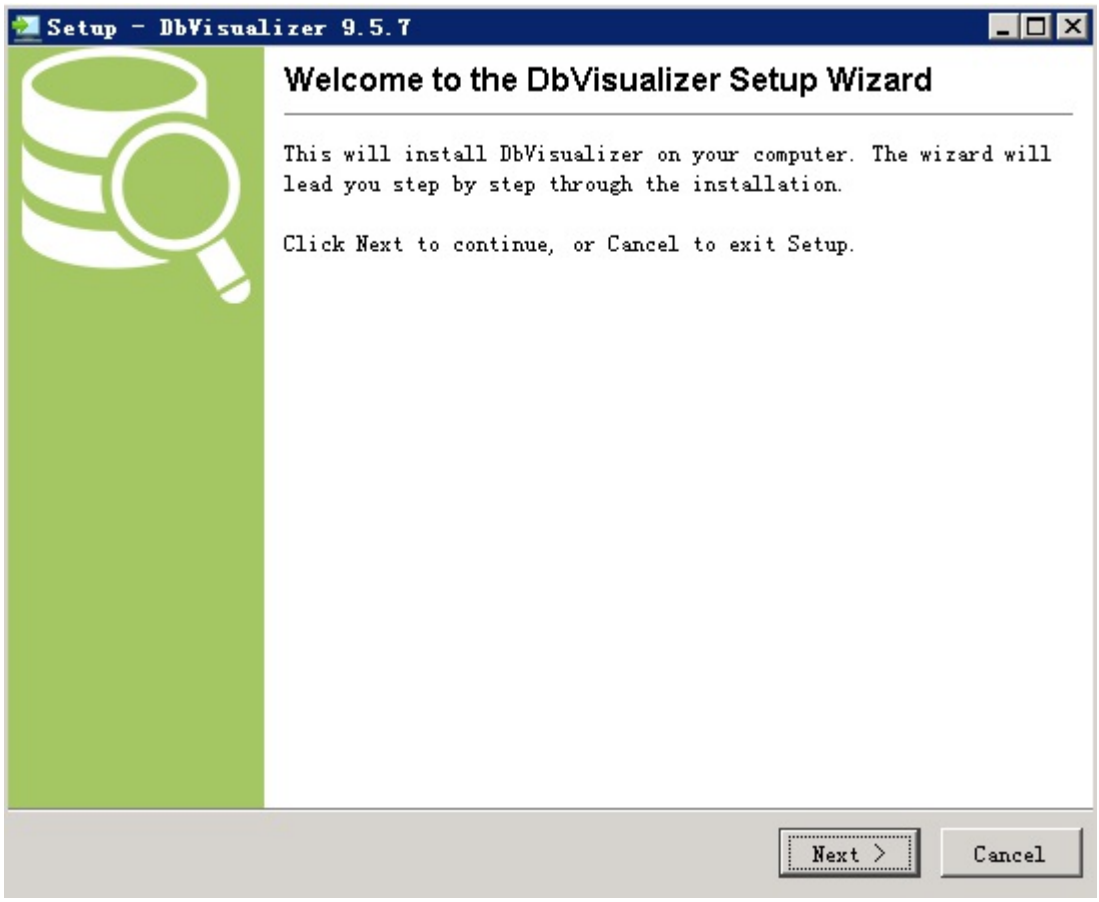
- 将Hive、Spark、Phoenix的JDBC配置中classPath中的文件拷贝至Fiber文件夹中。

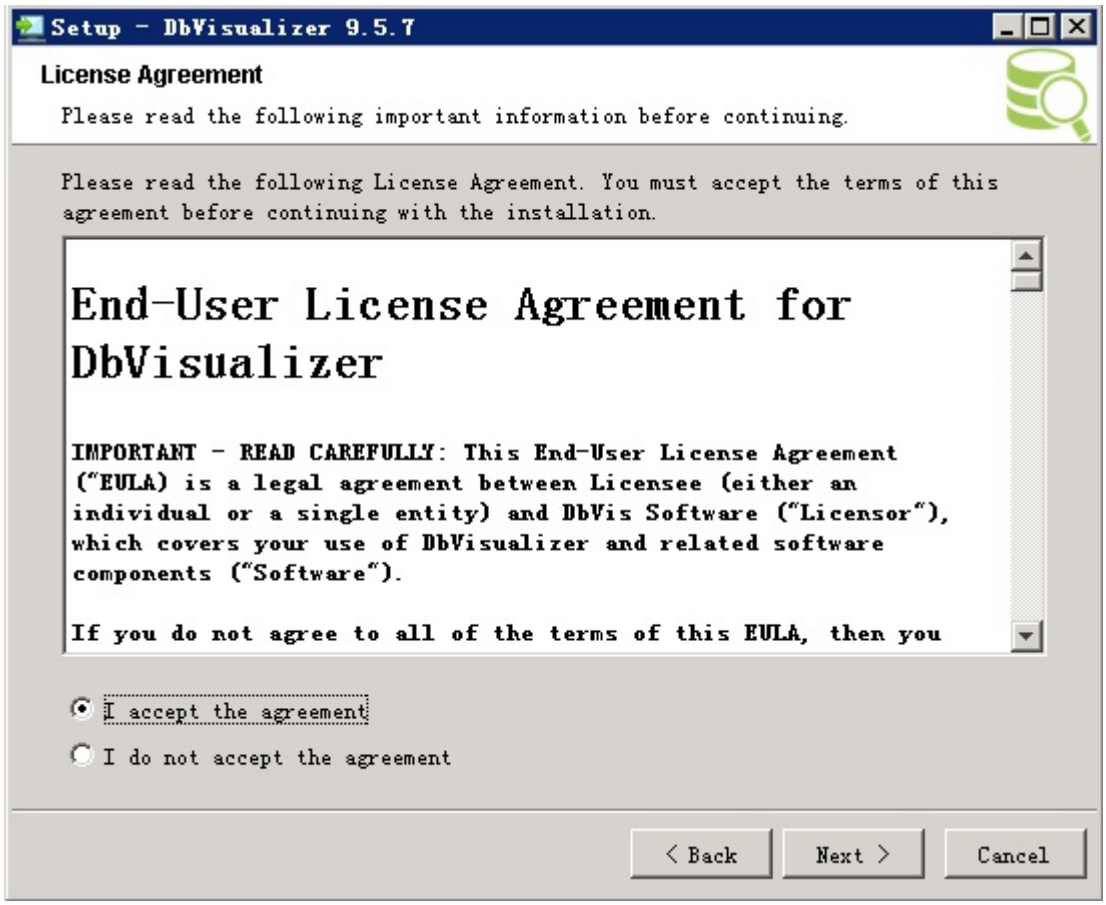
- 下载DbVisualizer，地址：http://www.dbvis.com/download/，下载软件dbvis_windows-x64_9_5_7_jre.exe

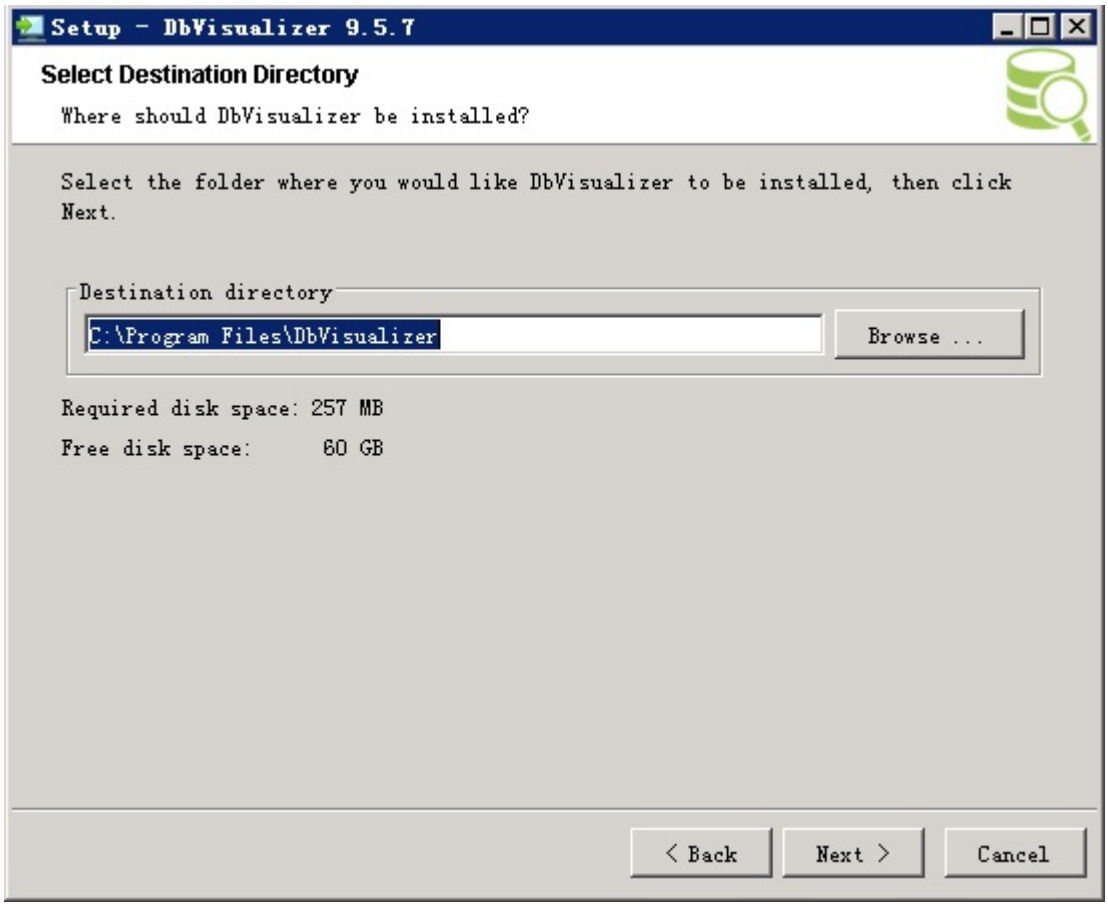
Platform & Installer Type	Without Java VM	With Java VM
Windows 32-bit (setup installer)	Download (40 MB)	Download (75 MB)
Windows 32-bit (zip archive)	Download (70 MB)	
Windows 64-bit (setup installer)	Download (40 MB)	Download (78 MB)
Windows 64-bit (zip archive)	Download (70 MB)	
Mac OS X (setup installer)	Download (40 MB)	Download (77 MB)
Mac OS X (tar.gz archive)	Download (70 MB)	
Linux (setup installer)	Download (39 MB)	
Linux (RPM archive)	Download (69 MB)	

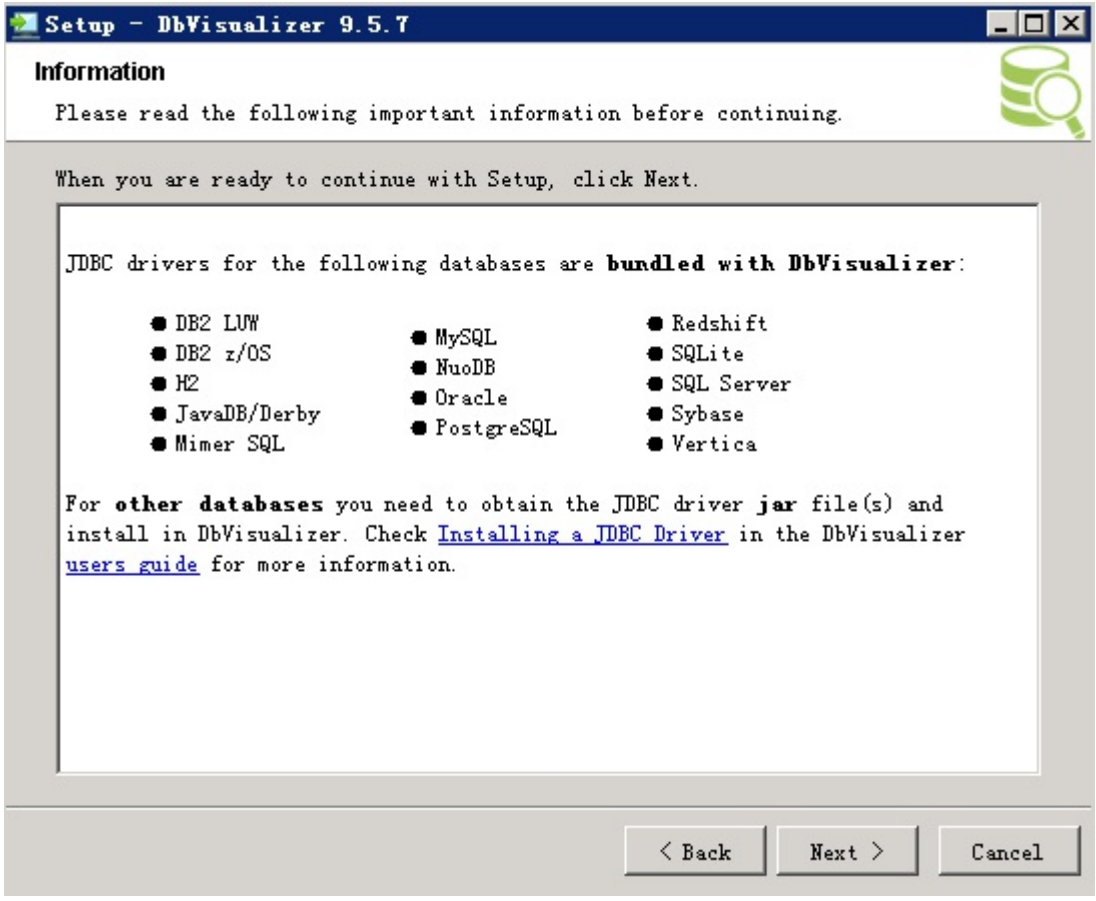
- 双击dbvis_windows-x64_9_5_7_jre.exe安装

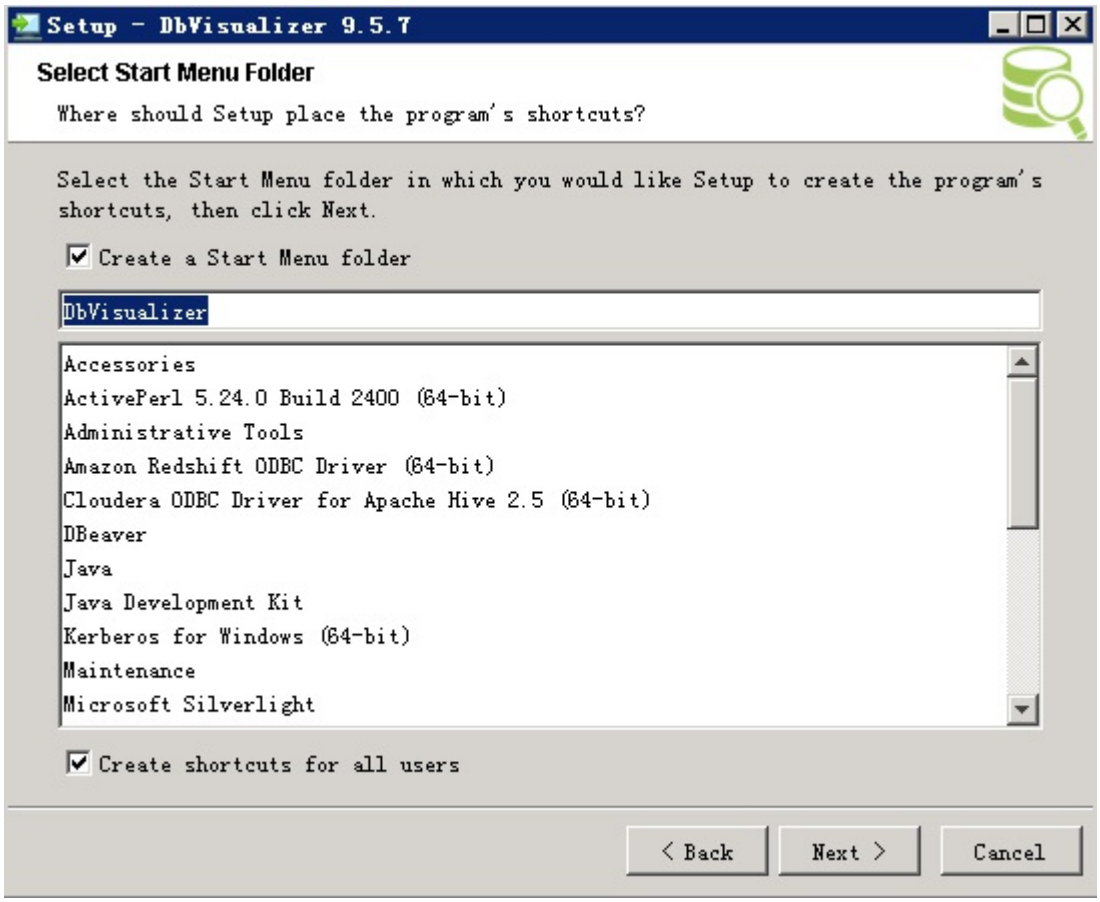


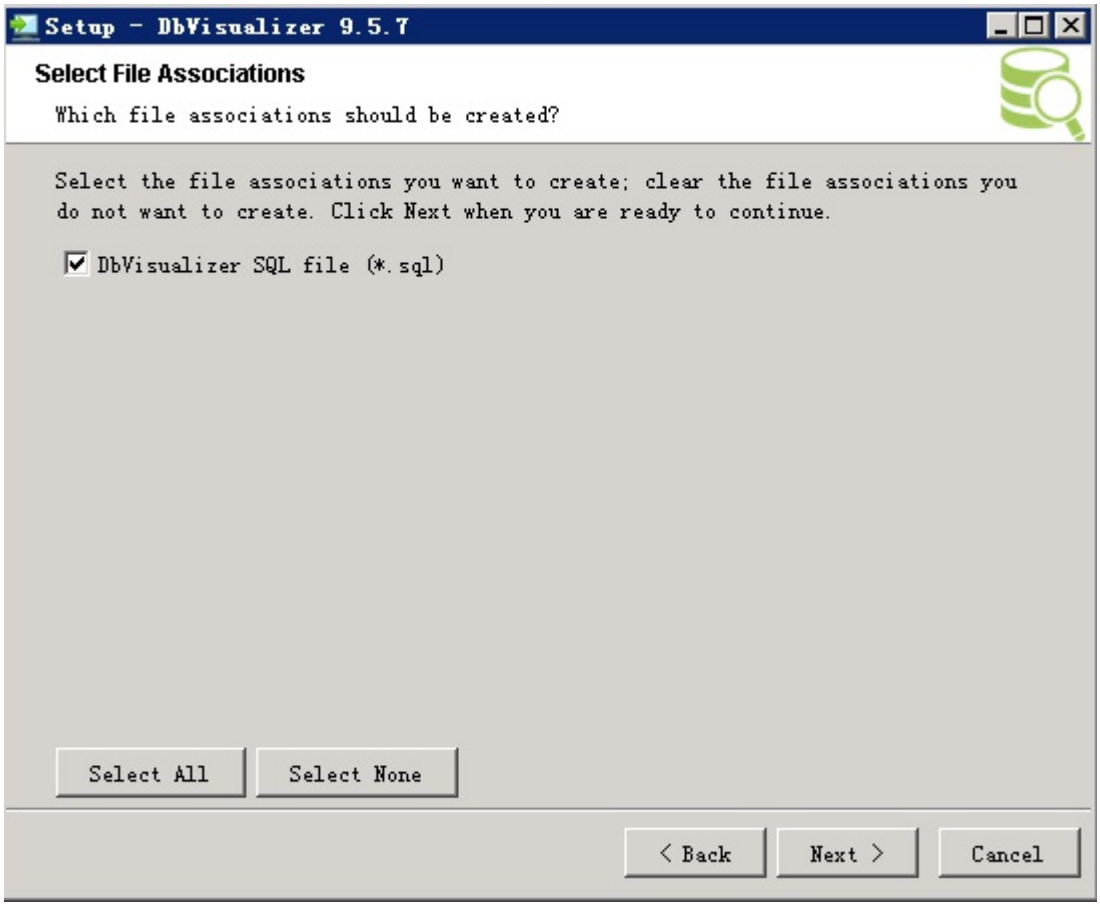

Setup - DbVisualizer 9.5.7
Welcome to the DbVisualizer Setup Wizard
This will install DbVisualizer on your computer. The wizard will lead you step by step through the installation.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

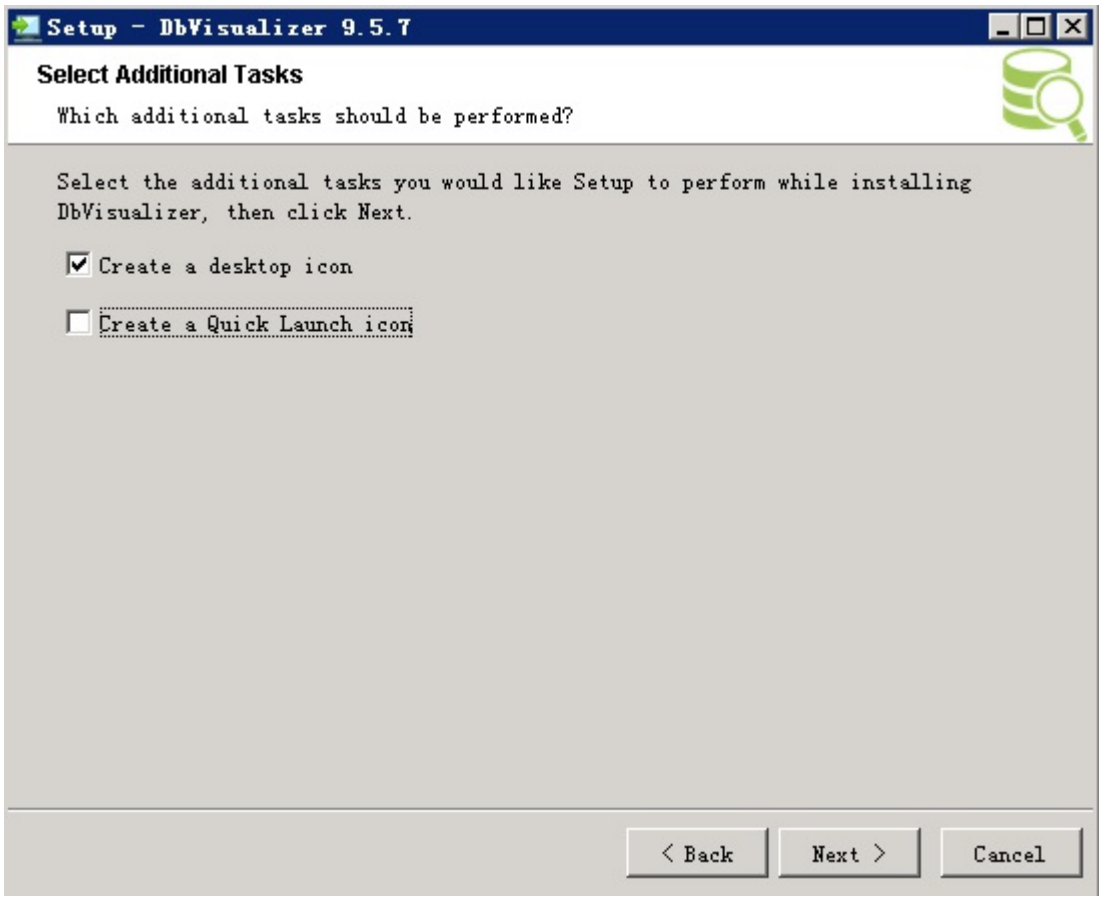

Setup - DbVisualizer 9.5.7
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
End-User License Agreement for DbVisualizer
IMPORTANT - READ CAREFULLY: This End-User License Agreement ("EULA) is a legal agreement between Licensee (either an individual or a single entity) and DbVis Software ("Licensor"), which covers your use of DbVisualizer and related software components ("Software").
If you do not agree to all of the terms of this EULA, then you
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

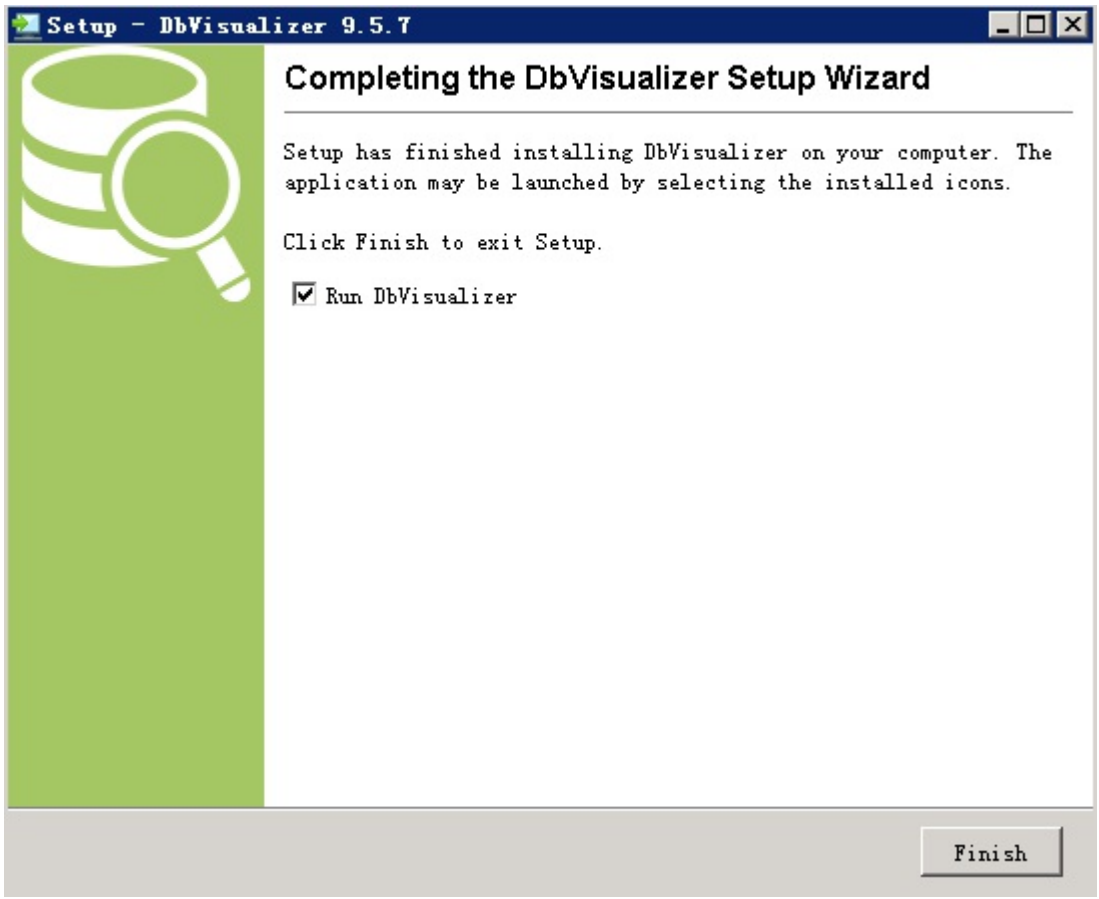

Setup - DbVisualizer 9.5.7
Select Destination Directory
Where should DbVisualizer be installed?
Select the folder where you would like DbVisualizer to be installed, then click Next.
Destination directory
C:\Program Files\DbVisualizer
Browse ...
Required disk space: 257 MB
Free disk space: 60 GB
< Back
Next >
Cancel


Setup - DbVisualizer 9.5.7
Information
Please read the following important information before continuing.
When you are ready to continue with Setup, click Next.
JDBC drivers for the following databases are bundled with DbVisualizer:
DB2 LUW
DB2 z/OS
H2
JavaDB/Derby
Mimer SQL
MySQL
NuoDB
Oracle
PostgreSQL
Redshift
SQLite
SQL Server
Sybase
Vertica
For other databases you need to obtain the JDBC driver jar file(s) and install in DbVisualizer. Check Installing a JDBC Driver in the DbVisualizer users guide for more information.
< Back
Next >
Cancel


Setup - DbVisualizer 9.5.7
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Select the Start Menu folder in which you would like Setup to create the program's shortcuts, then click Next.
Create a Start Menu folder
DbVisualizer
Accessories
ActivePerl 5.24.0 Build 2400 (64-bit)
Administrative Tools
Amazon Redshift ODBC Driver (64-bit)
Cloudera ODBC Driver for Apache Hive 2.5 (64-bit)
DBeaver
Java
Java Development Kit
Kerberos for Windows (64-bit)
Maintenance
Microsoft Silverlight
Create shortcuts for all users
< Back
Next >
Cancel


Setup - DbVisualizer 9.5.7
Select File Associations
Which file associations should be created?
Select the file associations you want to create; clear the file associations you do not want to create. Click Next when you are ready to continue.
DbVisualizer SQL file (*.sql)
Select All
Select None
< Back
Next >
Cancel

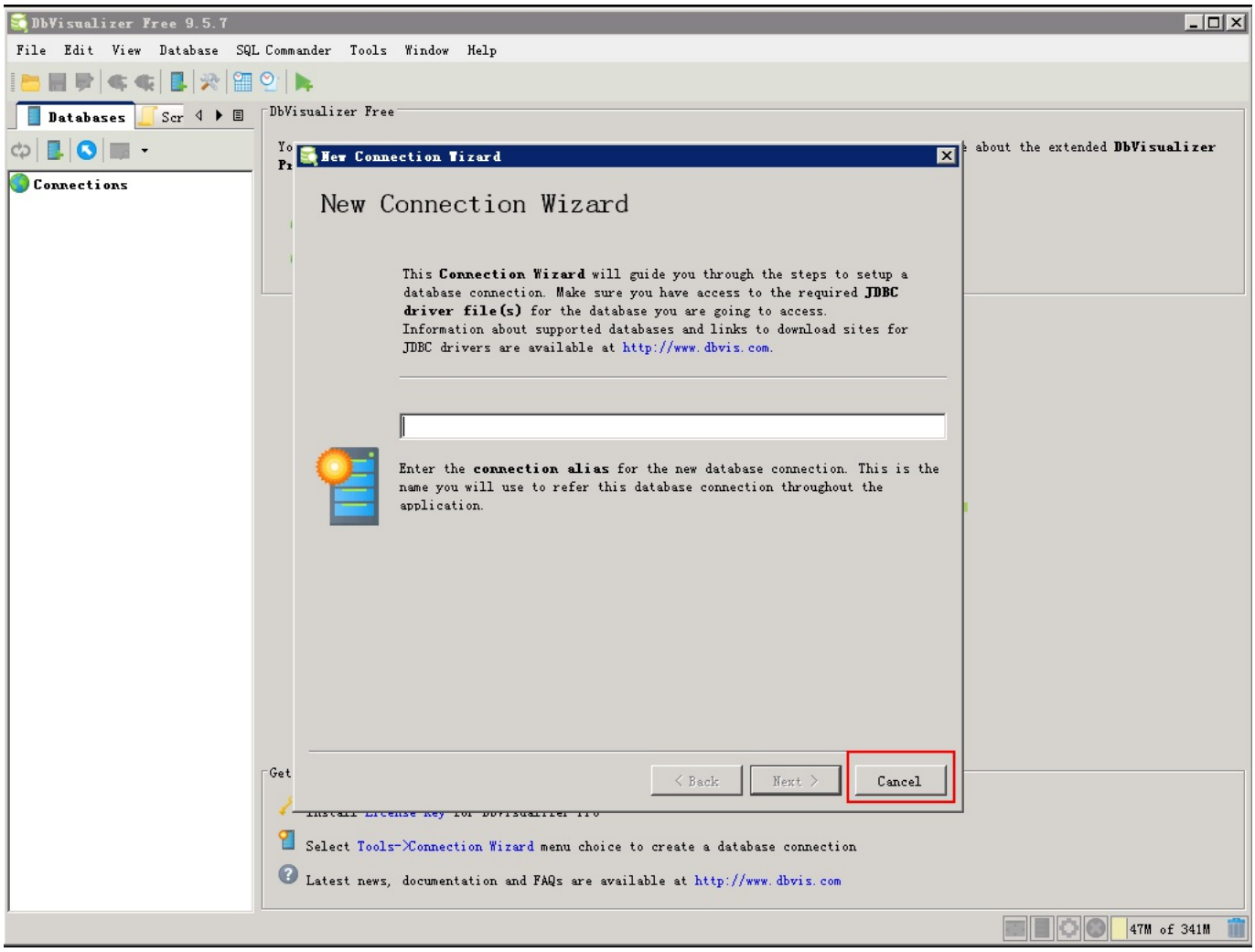




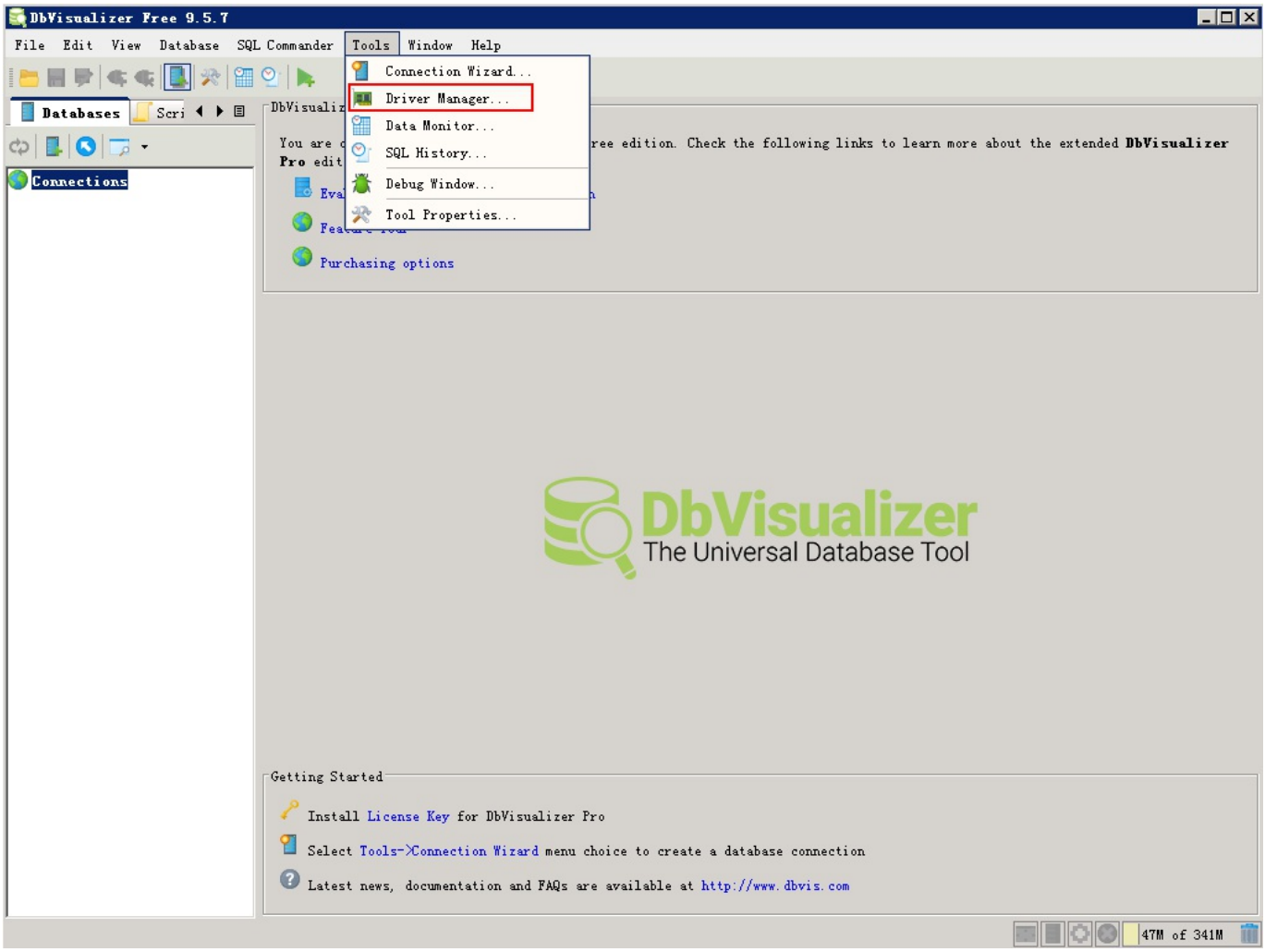
DbVisualizer连接Fiber

配置DbVisualizer通过Fiber连接FusionInsight的Hive、Spark、Phoenix组件。

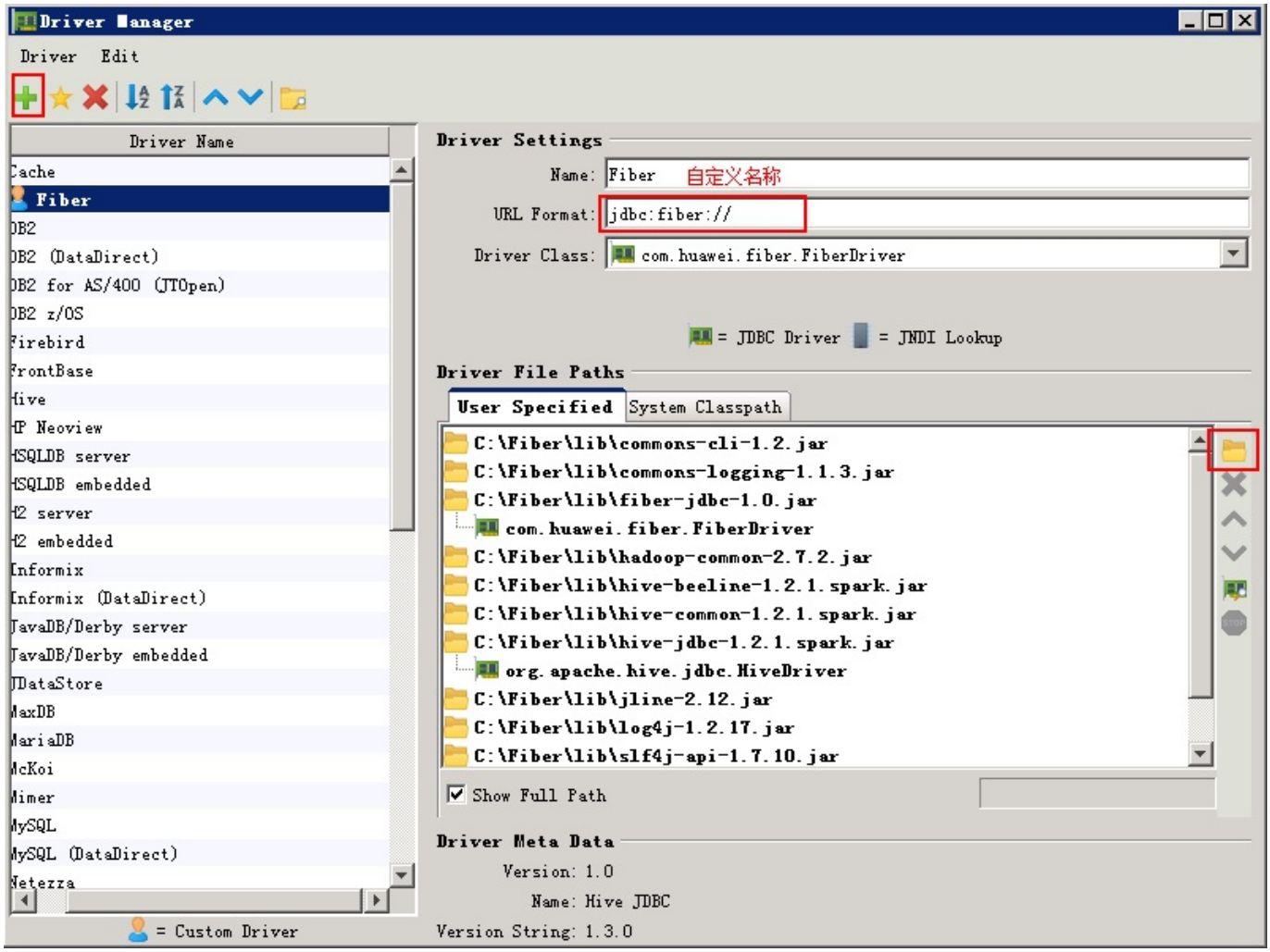
- 打开DbVisualizer9.5.7，点击 **Cancel**



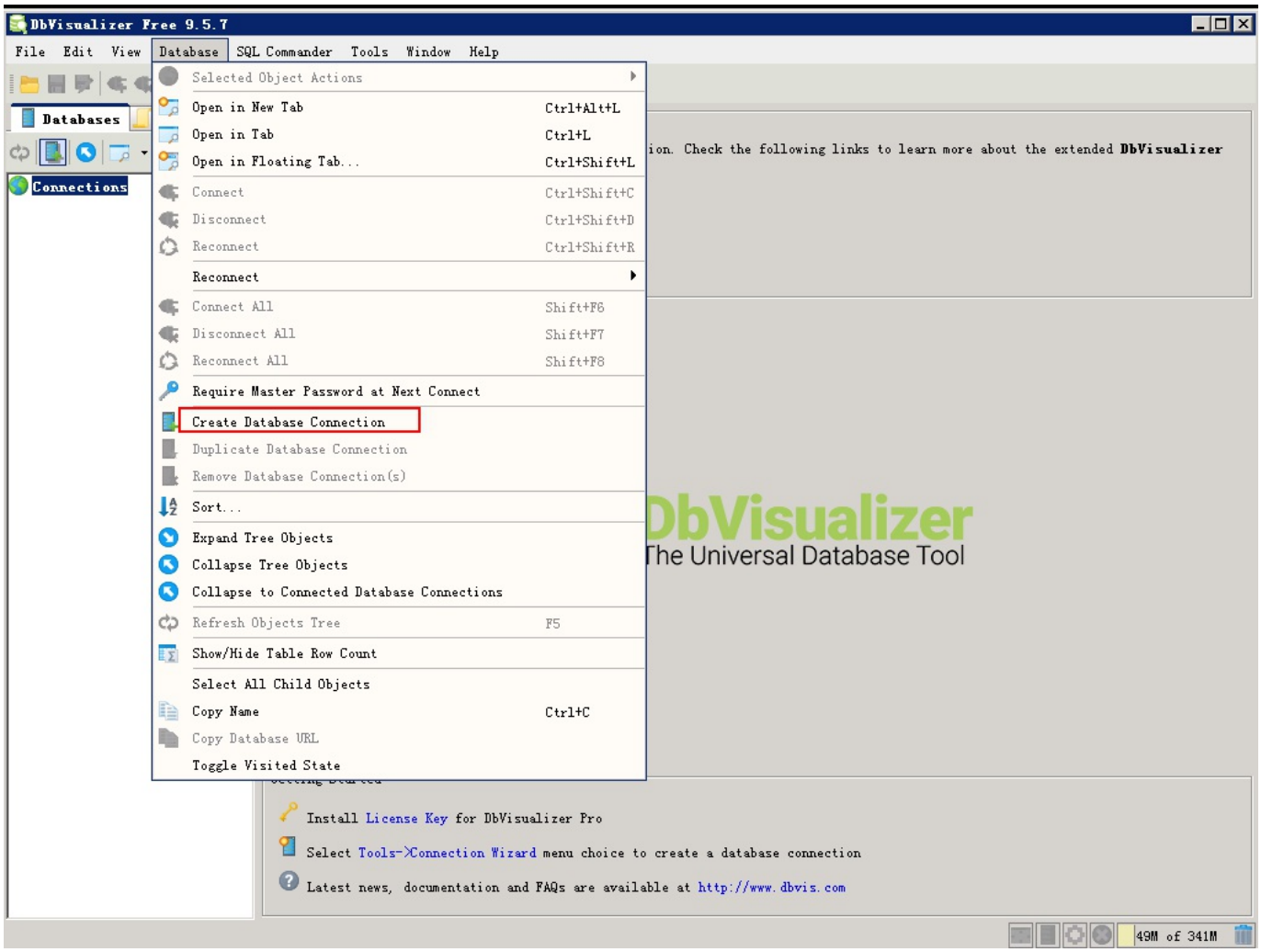
- 菜单栏选择 **ToolsDriver Manager**



- 新建driver
  - Name：Fiber(自定义)
  - URL Format：jdbc:fiber://
  - User Specified：将C:\Fiber\lib\下所有的jar包加入
  - Driver Class：加入jar包后选择com.huawei.fiber.FiberDriver



菜单栏 **Database** -> **Create Database Connection**

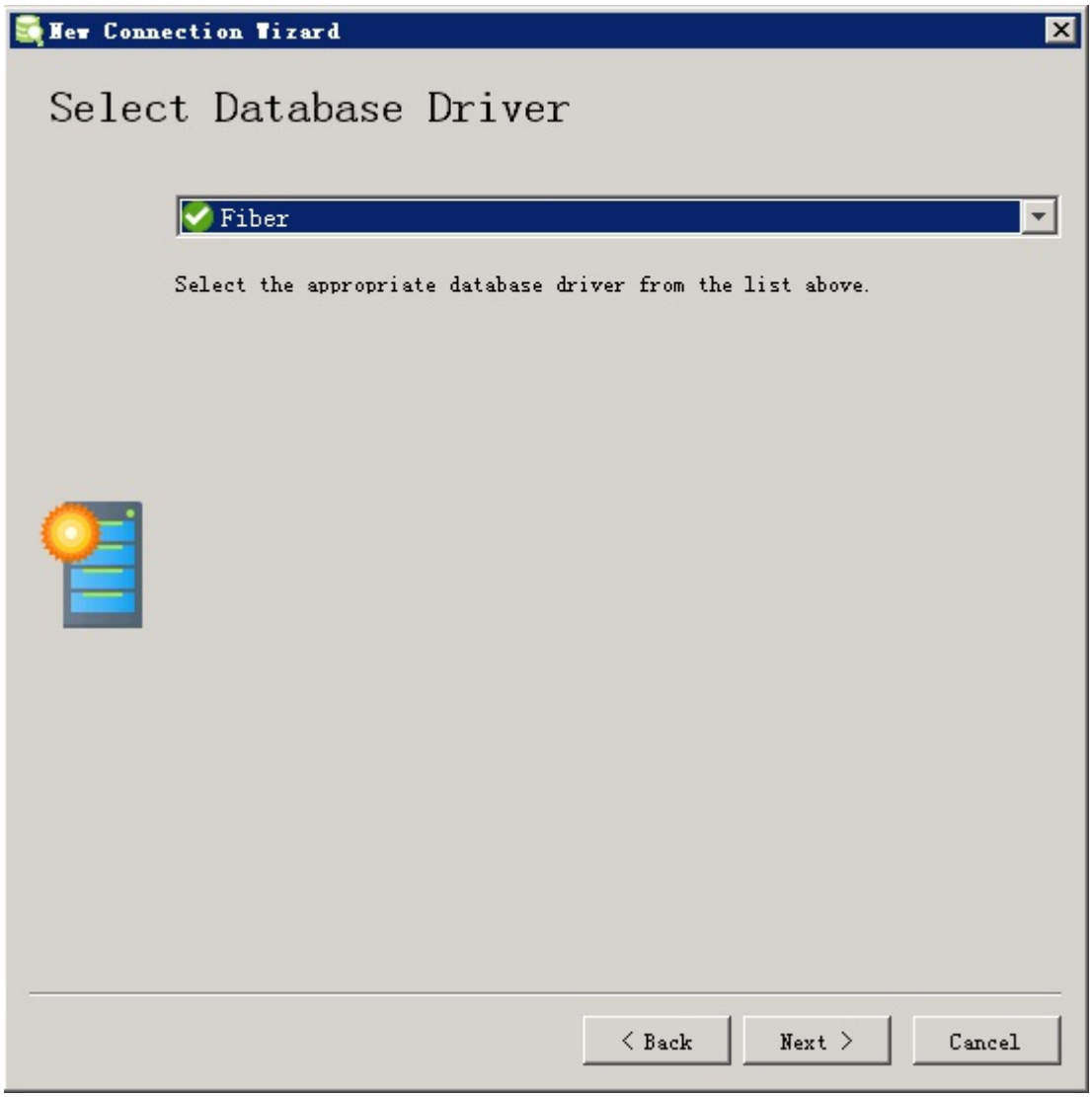


选择 **Use Wizard**

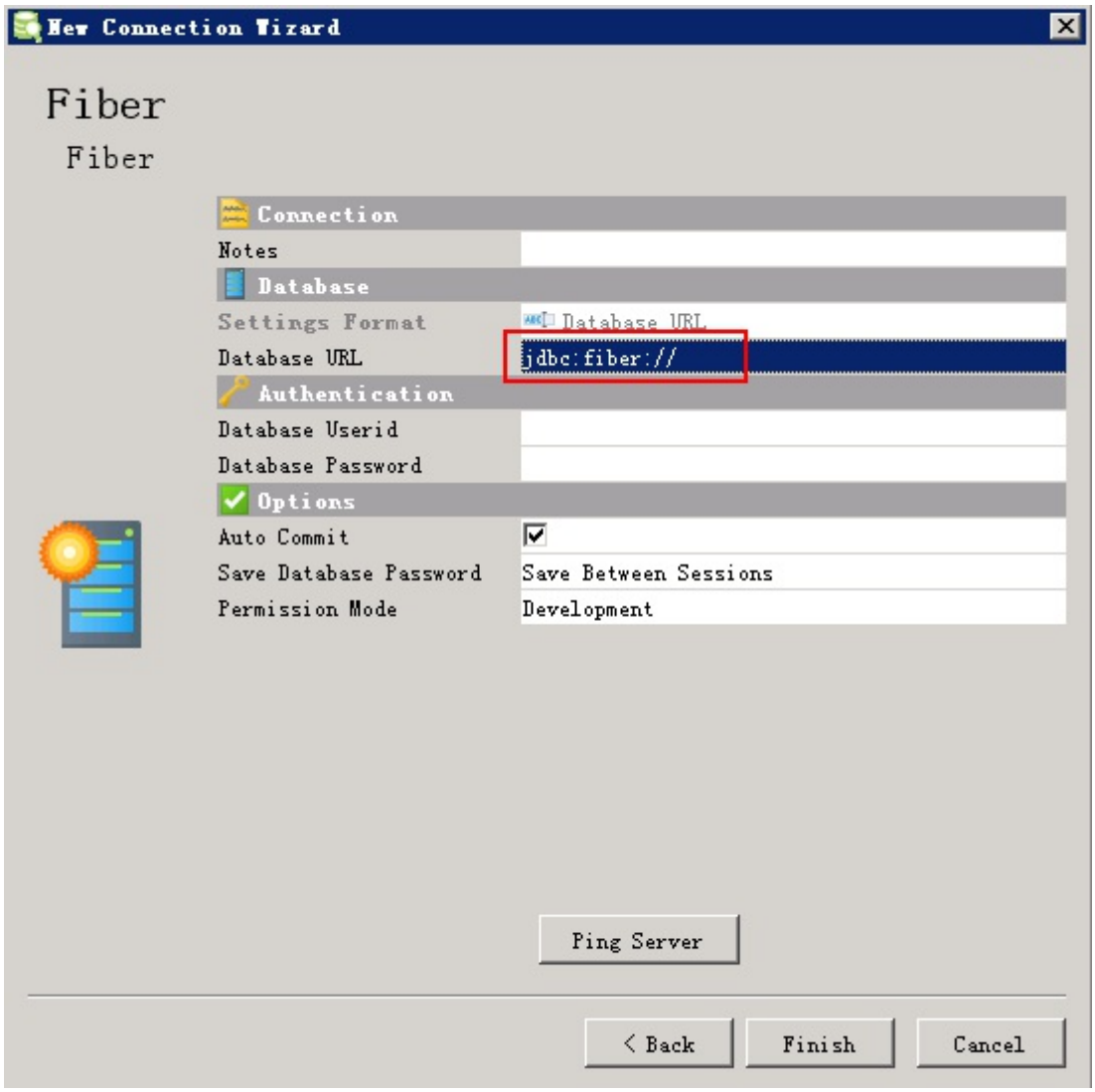
{width="4.2in" height="1.4in"}

自定义连接名称，例如Fiber

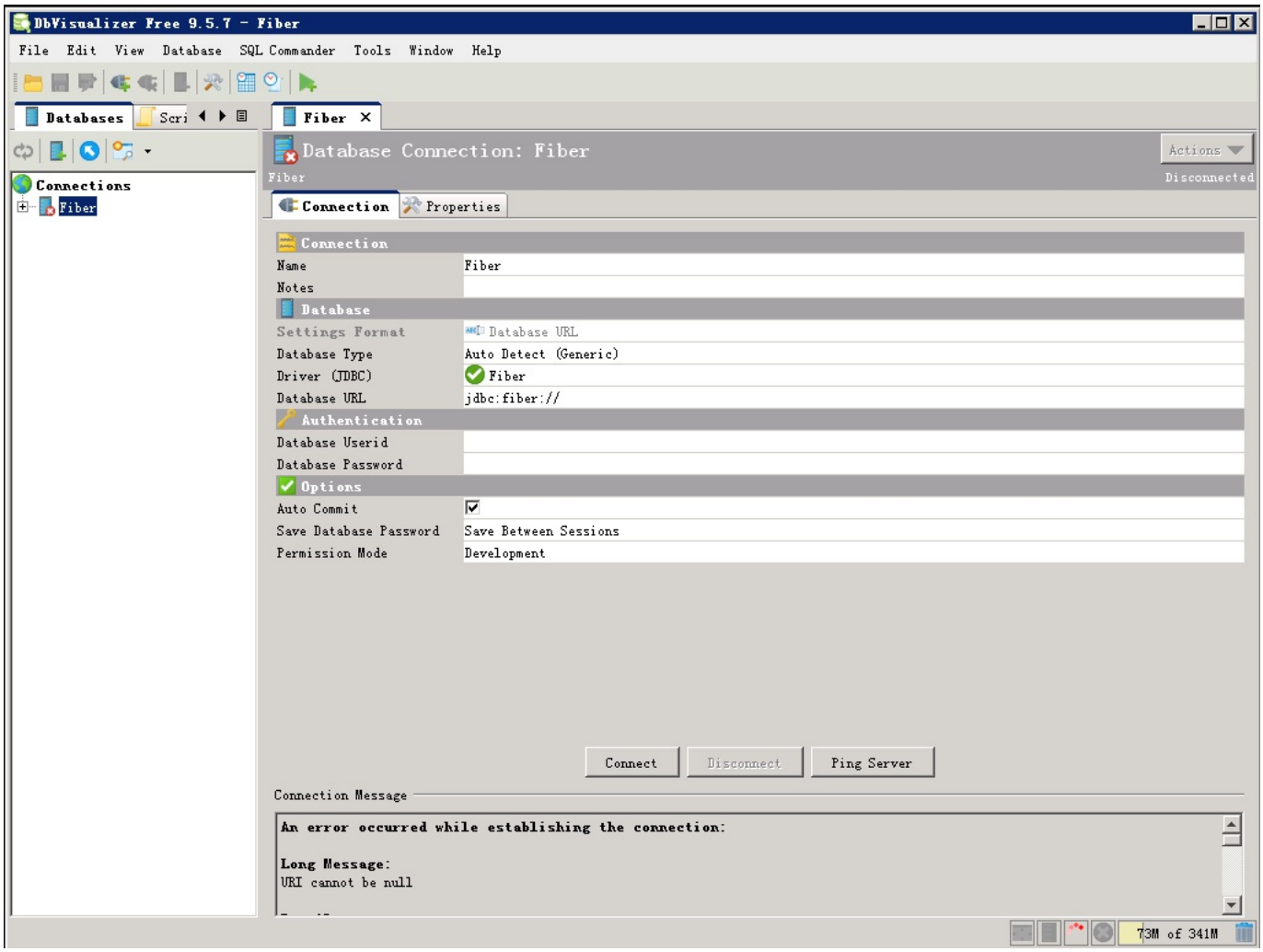
选择Driver Fiber



填写URL：jdbc:fiber://

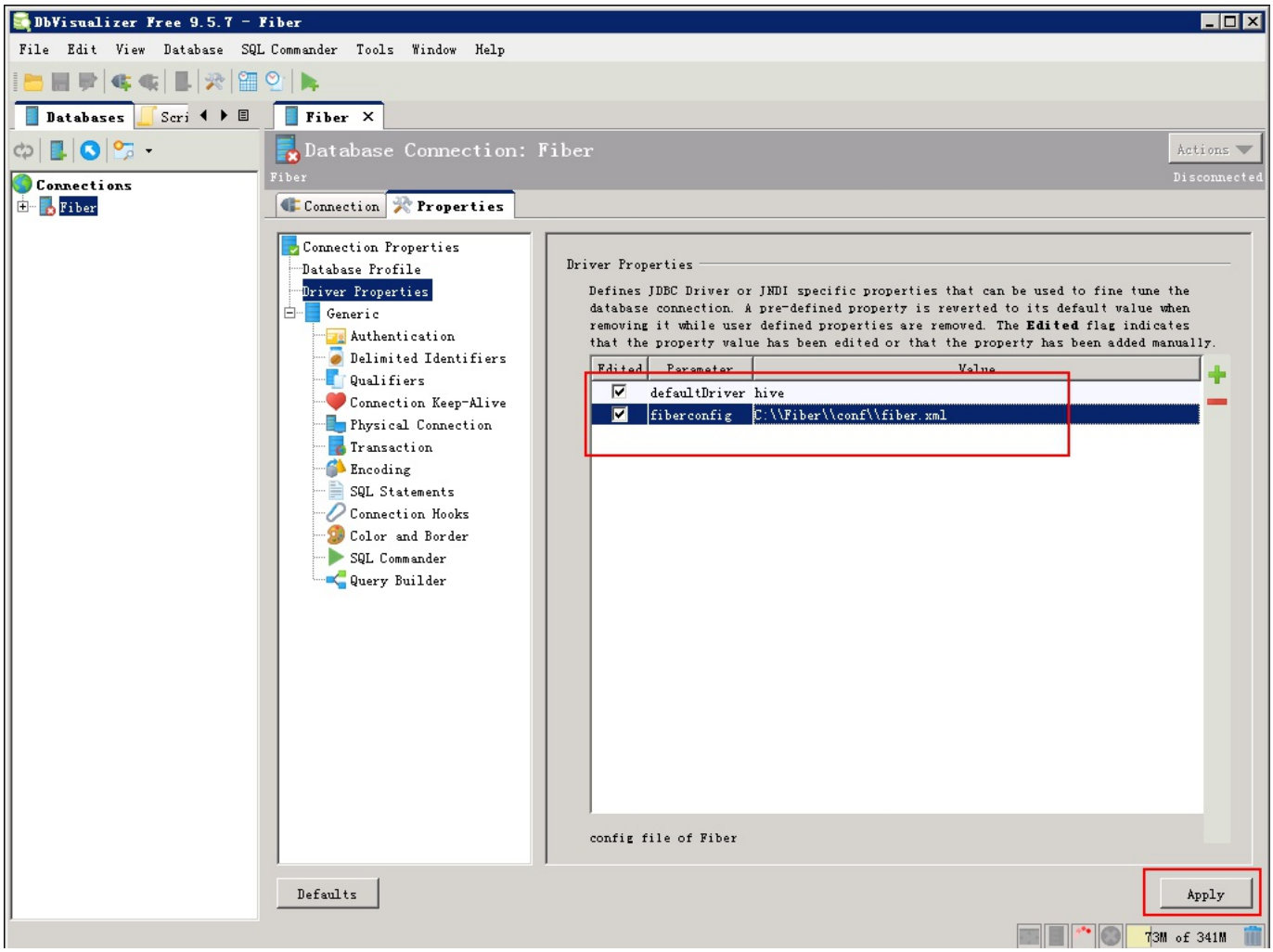

New Connection Wizard
Fiber
Fiber
Connection
Notes
Database
Settings Format
Database URL
Database URL
jdbc:fiber://
Authentication
Database Userid
Database Password
Options
Auto Commit
Save Database Password
Save Between Sessions
Permission Mode
Development
Ping Server
< Back
Finish
Cancel

点击 **Finish**

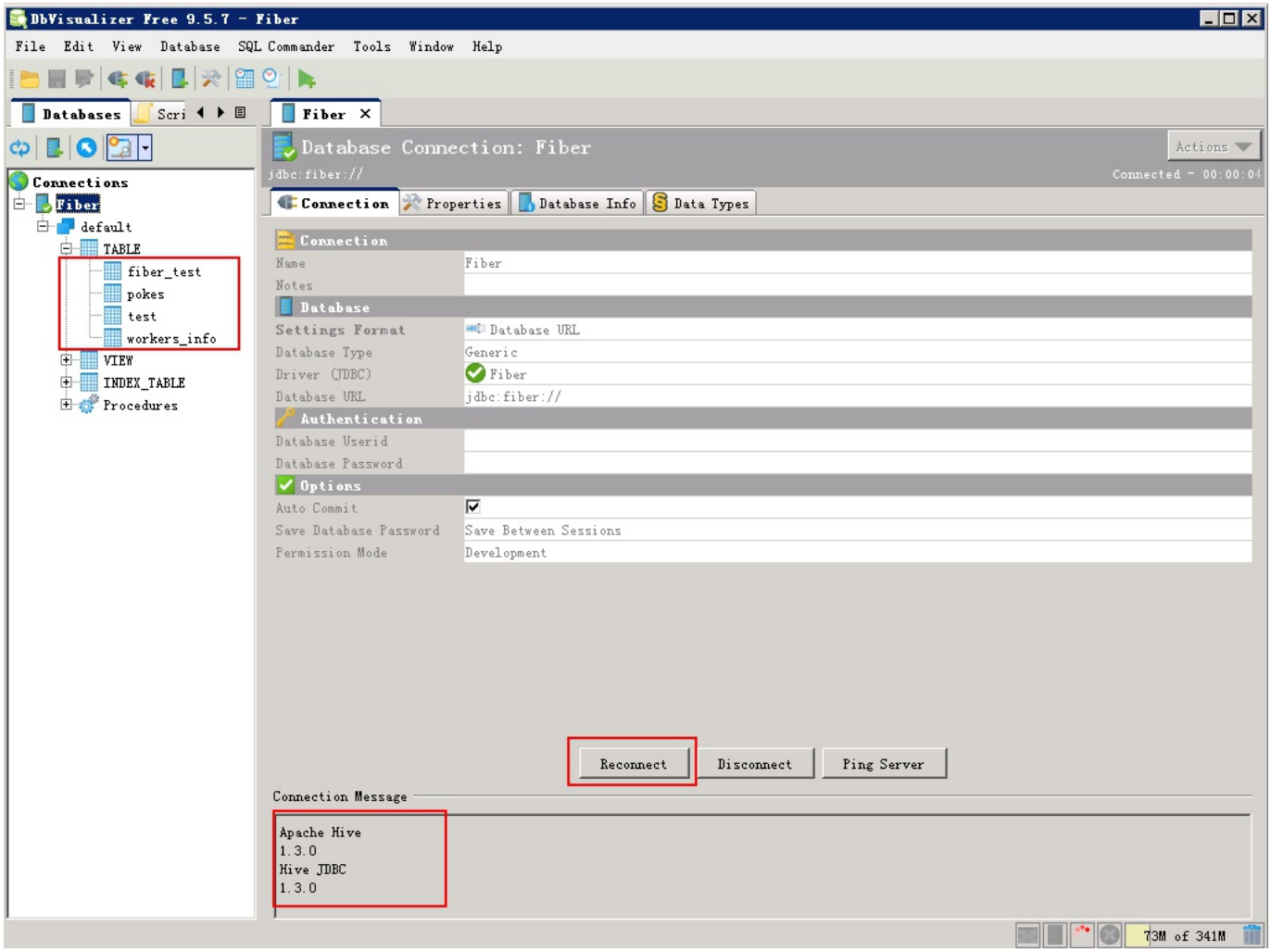


查询Hive表数据

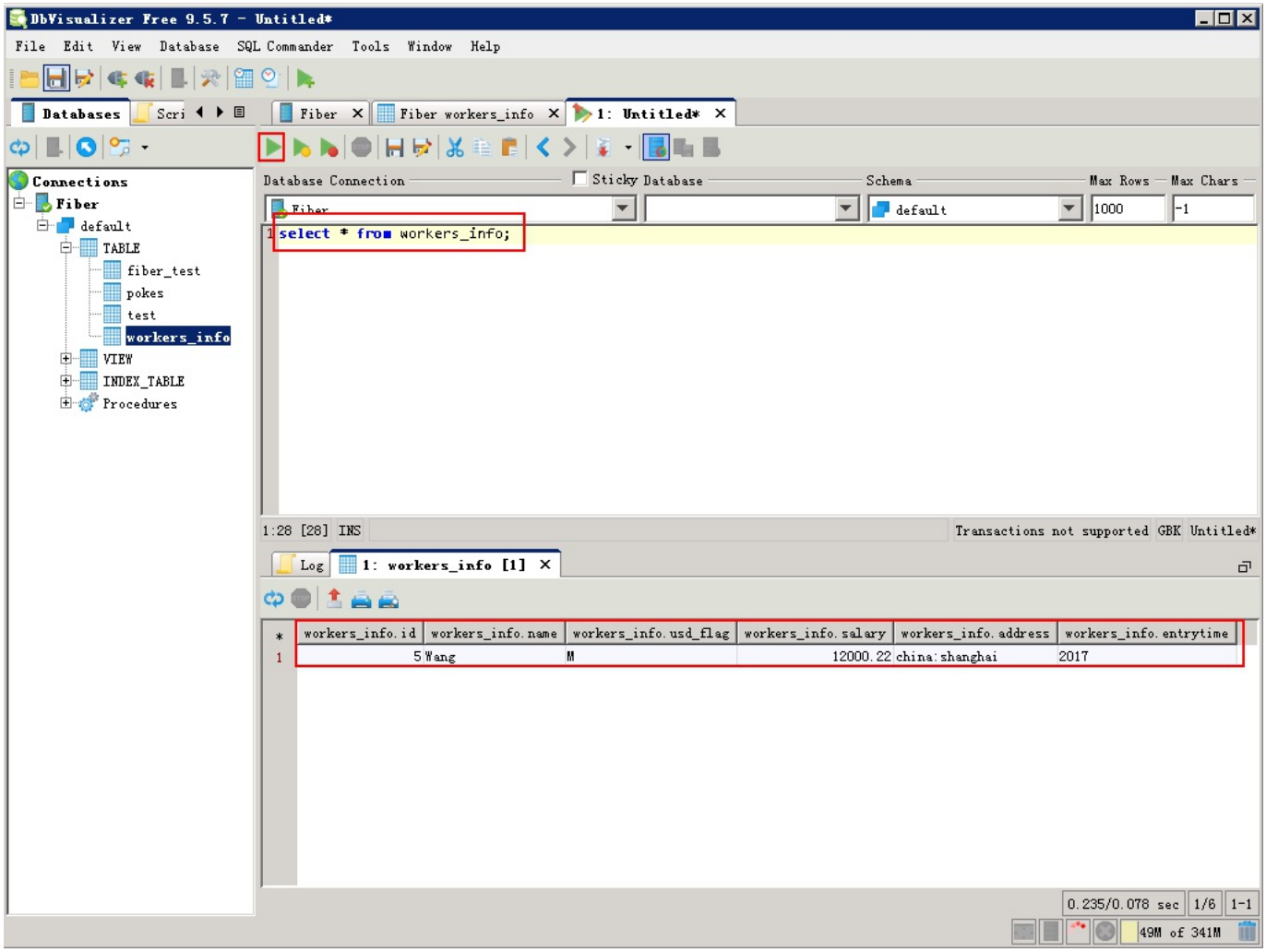
- 打开 **Properties** 面板，填写defaultDriver和fiberconfig属性，点击 **Apply** 。



- 打开 **Connection** 面板，点击 **Connect** 按钮，可以在左侧看到hive数据表。

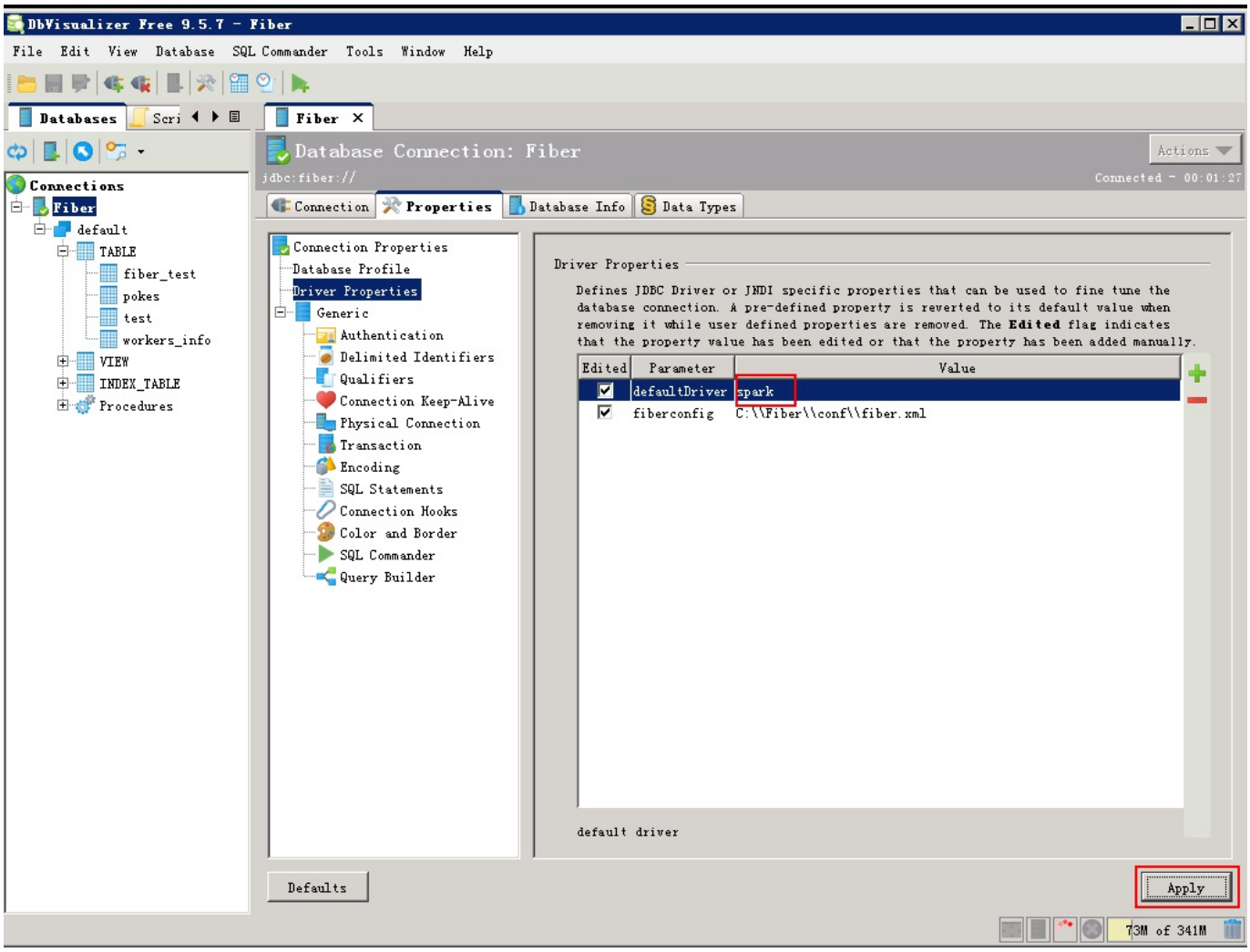


- 菜单栏选择 **File** -> **New SQL Commander**，编辑SQL，点击 **执行** 按钮，查看查询结果。

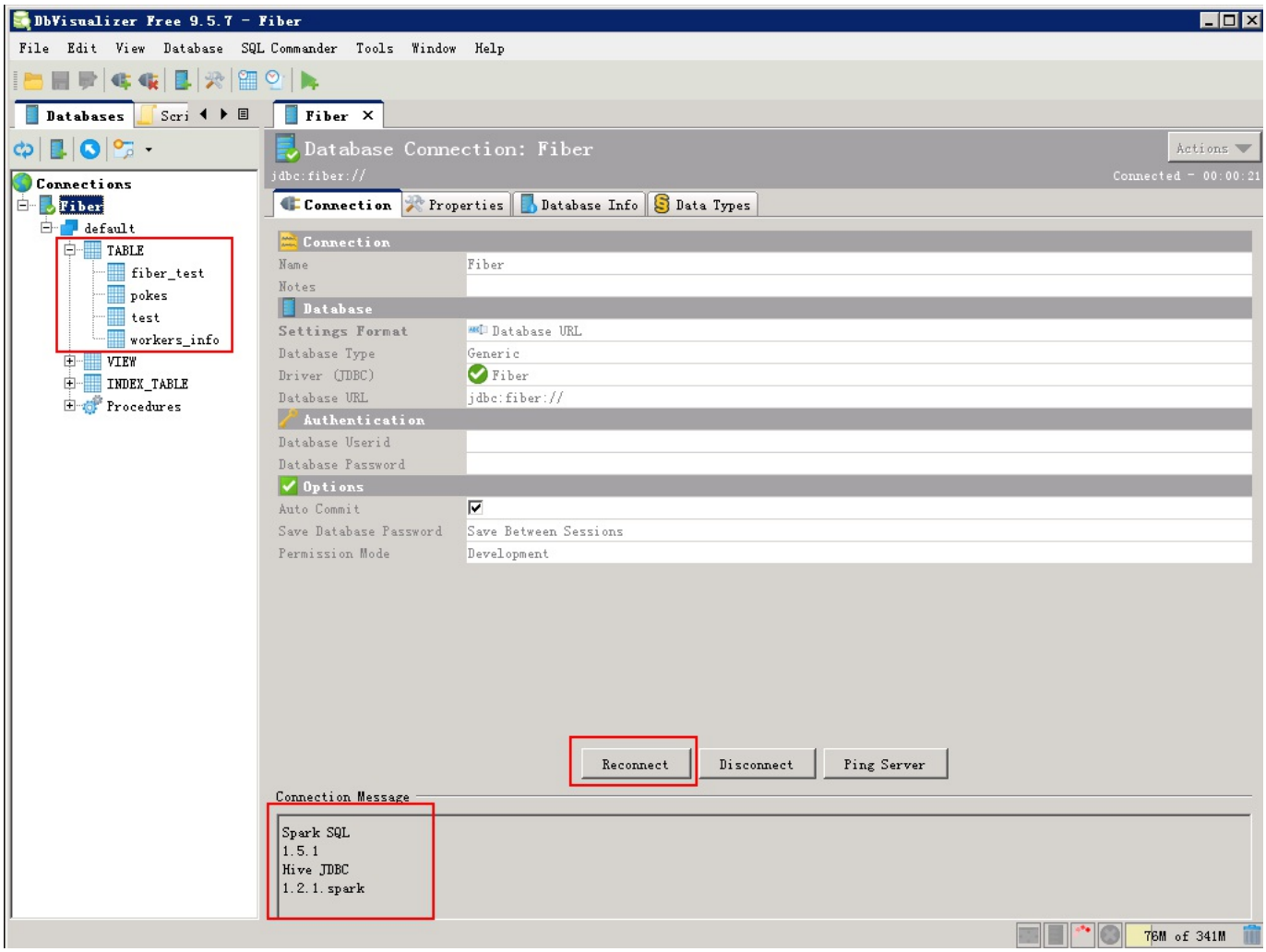


查询SparkSQL中的数据

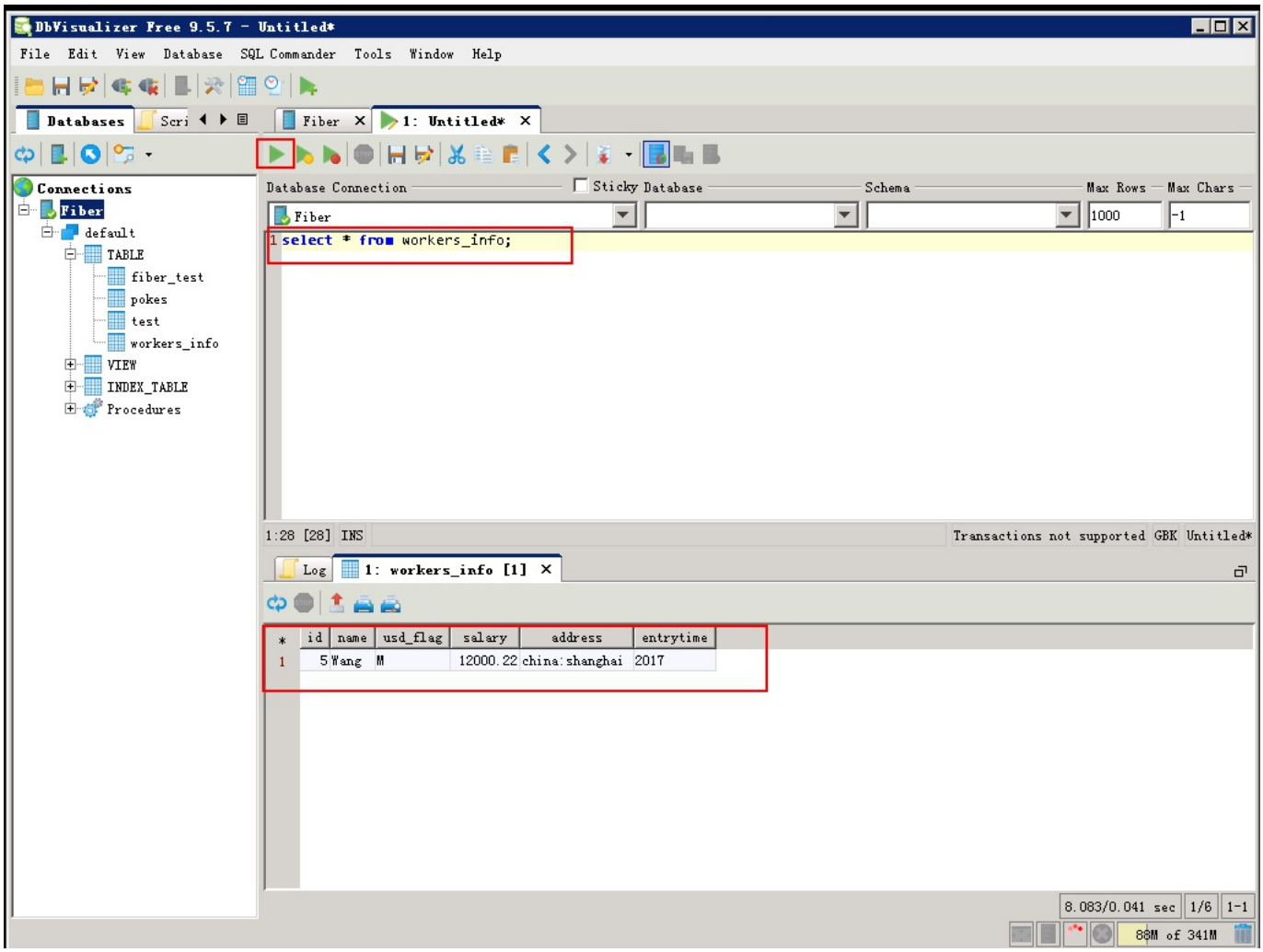
- 将defaultDriver切换为spark：将 **Properties** 中的defaultDriver值改为spark，点击 **Apply** 。



- 打开Connection面板，点击 **Reconnect** ，连接成功，可以看到SparkSQL中的数据表。

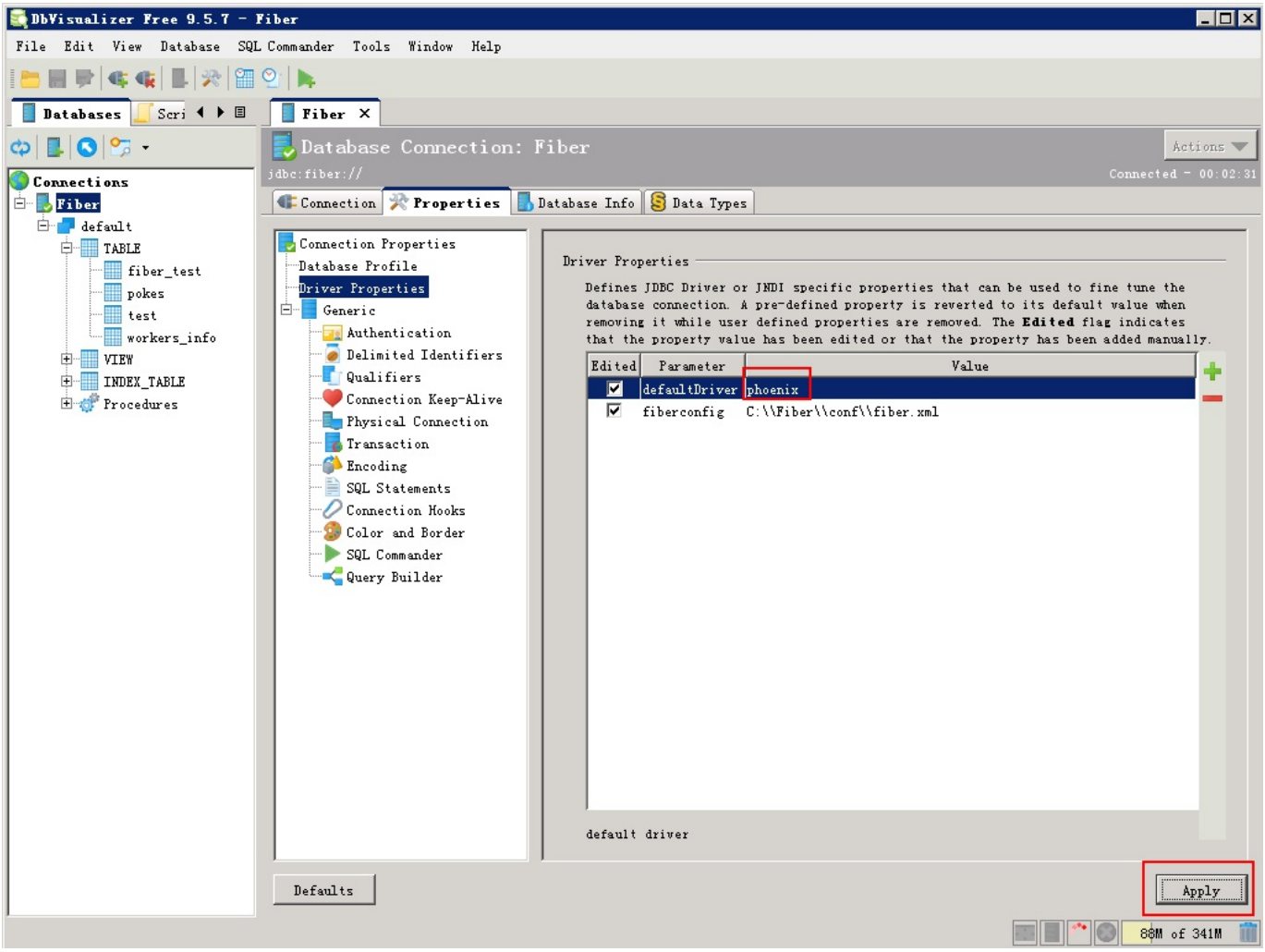


- 菜单栏选择 **File** -> **New SQL Commander**，编辑SQL，点击 **执行** 按钮，查看查询结果。

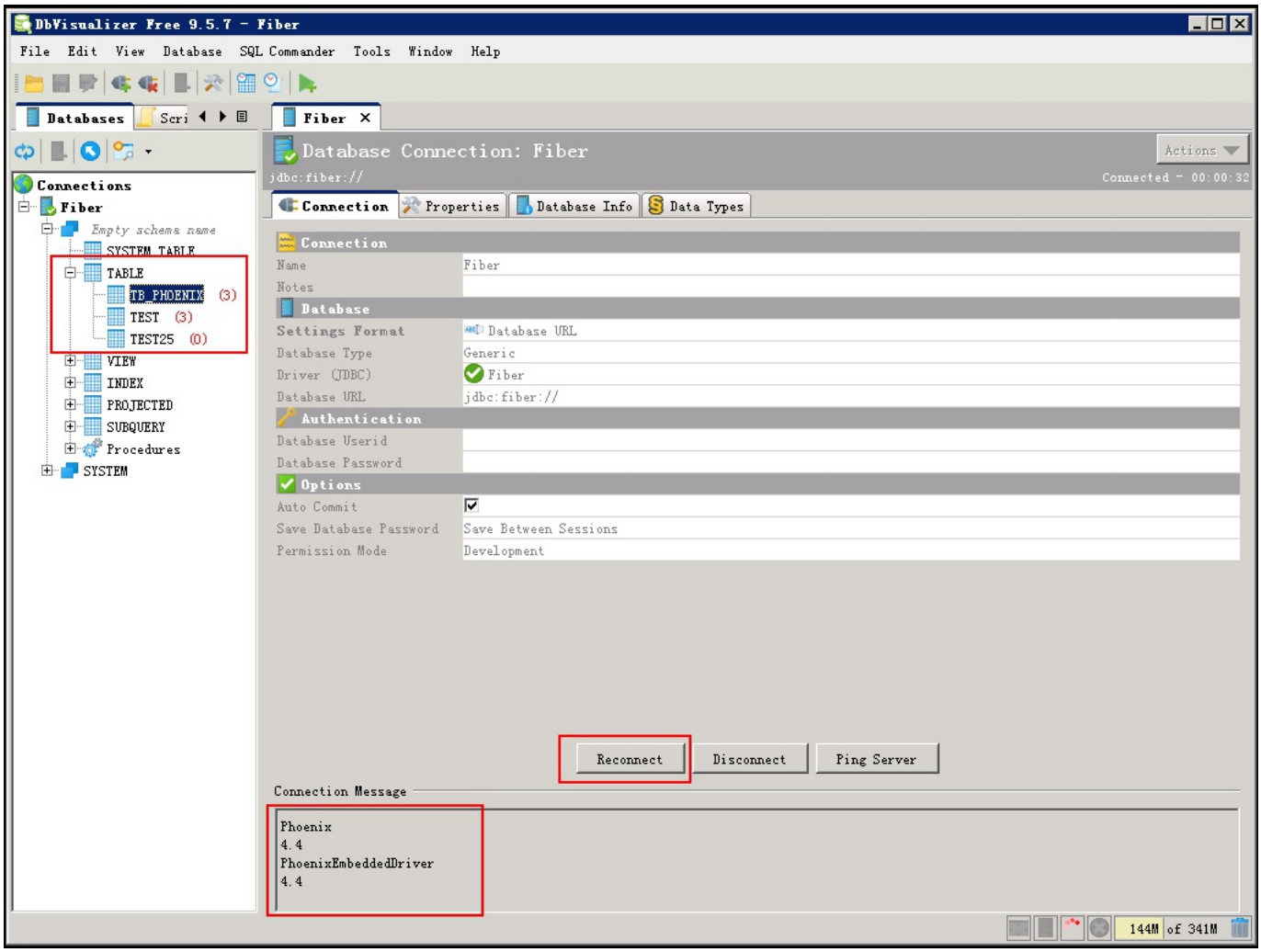


查询Phoenix中的数据

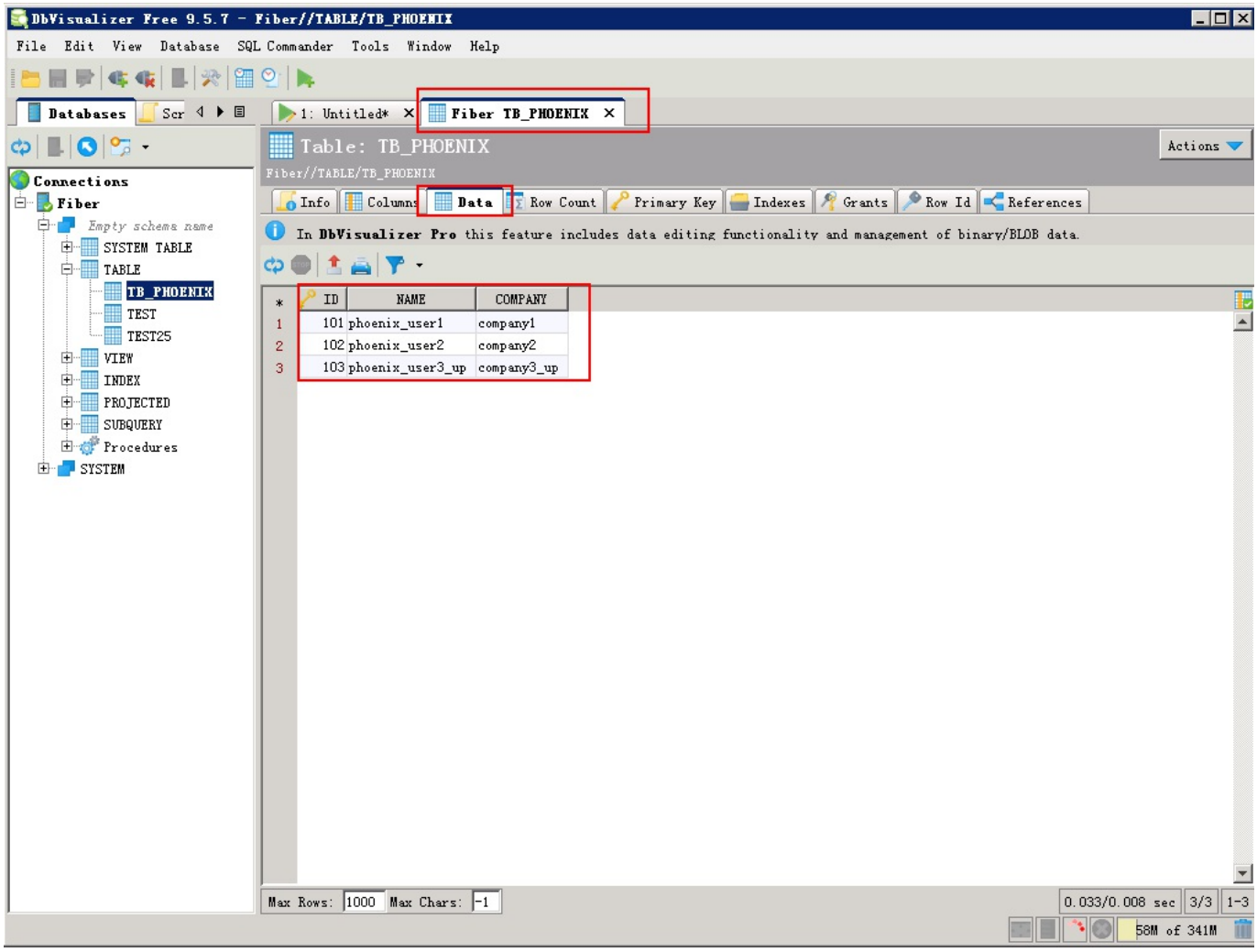
- 将defaultDriver切换为phoenix，将 **Properties** 中的defaultDriver值改为phoenix，点击 **Apply** 。



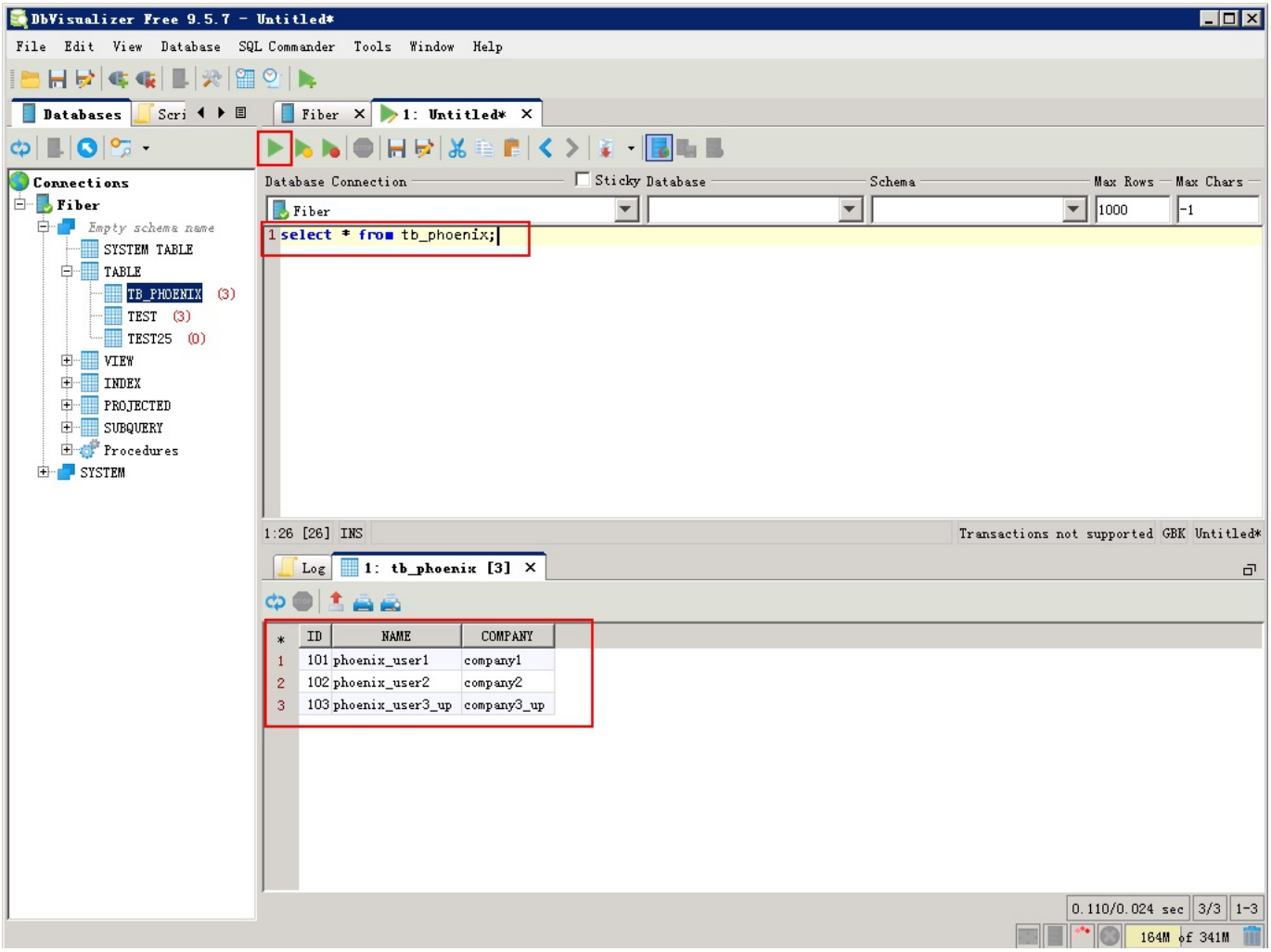
- 打开 **Connection** 面板，点击 **Reconnect**，连接成功，可以看到phoenix数据表



- 查看phoenix表TB_PHOENIX中的数据。



- 菜单栏选择 **File** -> **New SQL Commander**，编辑SQL，点击 **执行** 按钮，查看查询结果。



Phoenix的增加删除更新数据

> Phoenix的增加删除更新数据，需要在Fiber中hbase的配置文件hbase-site.xml中加入如下参数，否则不会自动Commit

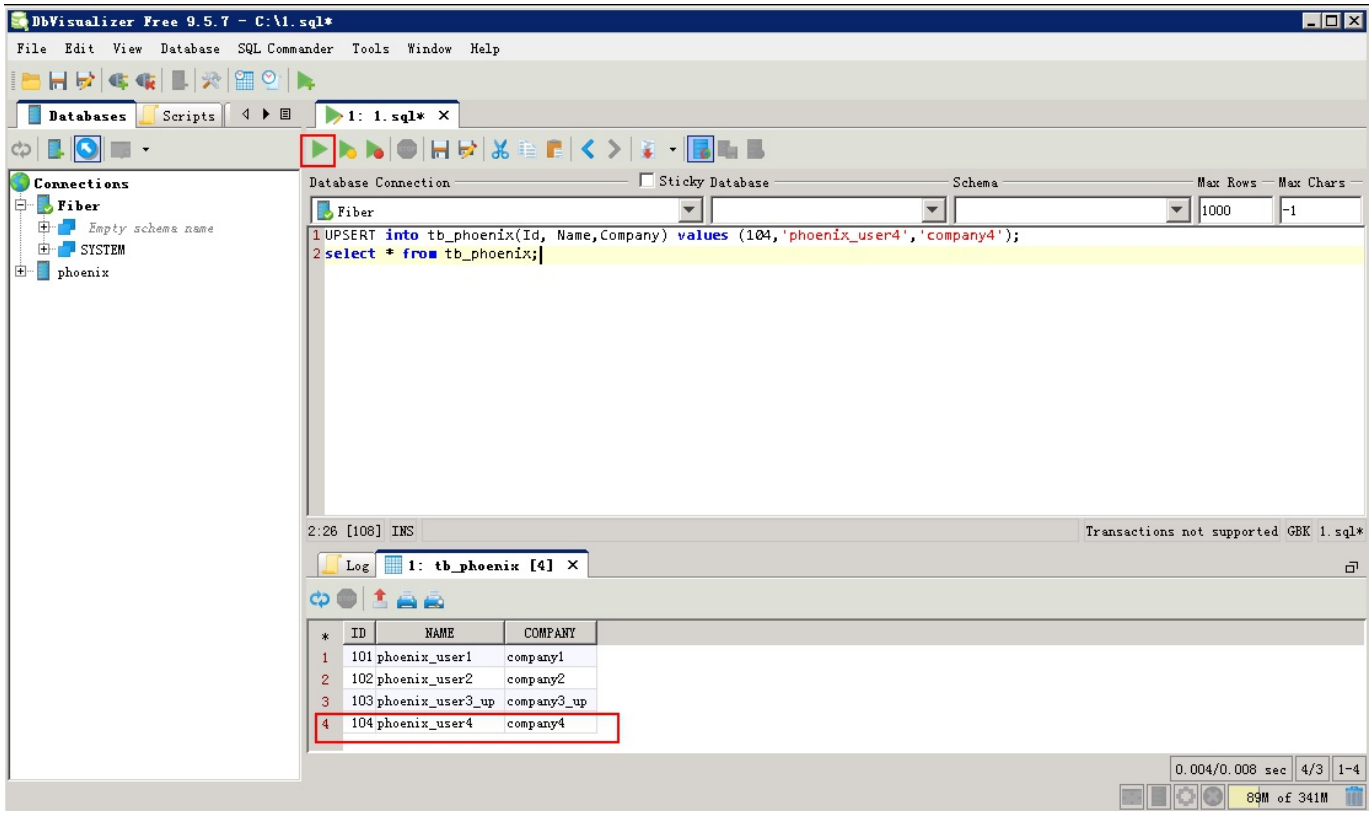
- 修改Hbase-site.xml文件，位置 `C:\Fiber\HBase\hbase\conf\hbase-site.xml` ，然后重启DbVisualizer。

```
<property>
  <name>phoenix.connection.autoCommit</name>
  <value>true</value>
</property>
```

```
<value>org.apache.hadoop.hbase.regionserver.wal.SecureProtobufLogReader</value>
</property>
<property>
<name>hbase.rpc.timeout</name>
<value>60000</value>
</property>
<property>
<name>hbase.zookeeper.property.clientPort</name>
<value>24002</value>
</property>
<property>
<name>hbase.regionserver.wal.encryption</name>
<value>false</value>
</property>
<property>
<name>hbase.replication.bulkload.enabled</name>
<value>false</value>
</property>
<property>
<name>hbase.region.assignment.auto.recovery.enabled</name>
<value>true</value>
</property>
<property>
<name>hbase.fileStream.cleaner.ttl.enable</name>
<value>false</value>
</property>
<property>
<name>phoenix.connection.autoCommit</name>
<value>true</value>
</property>
</configuration>
```

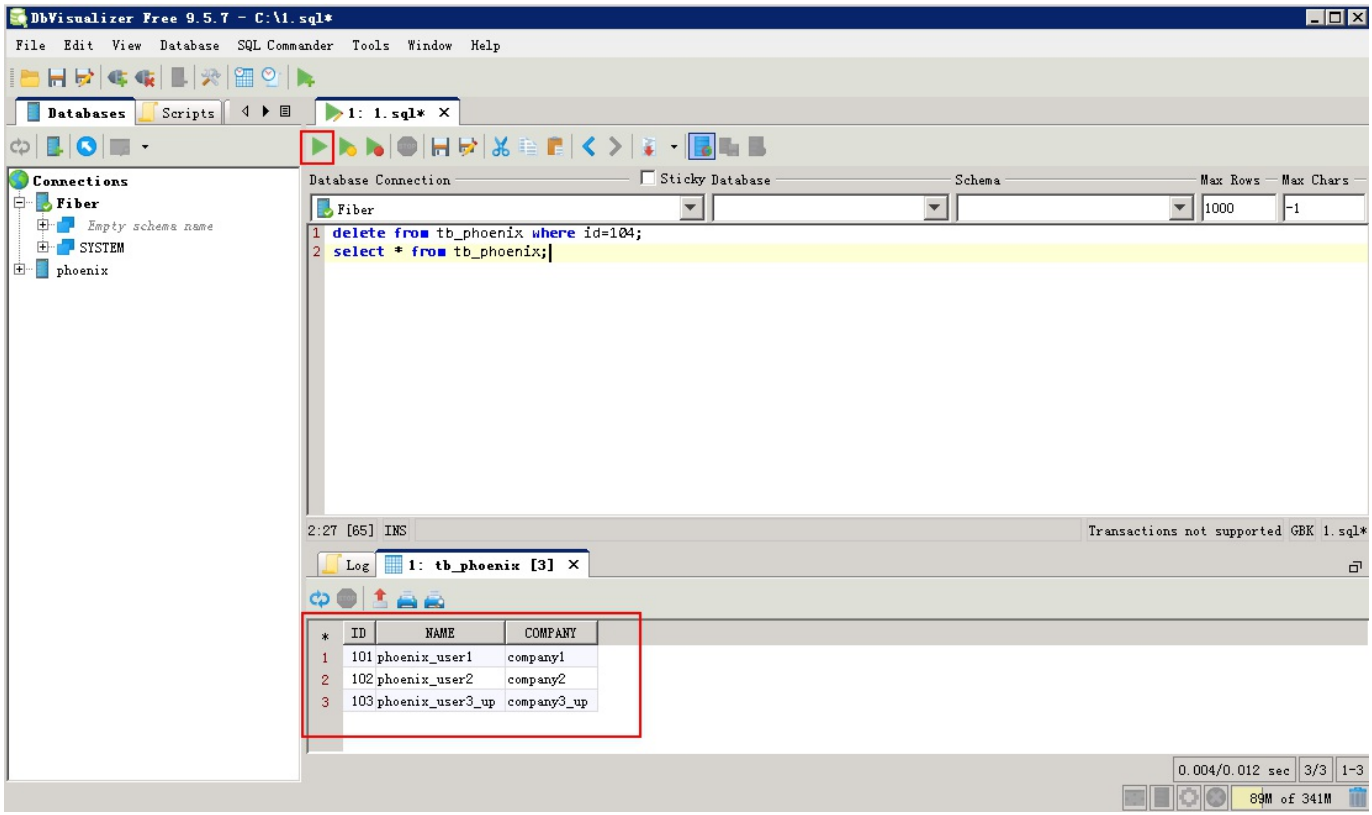
- Phoenix表增加数据

```
UPSERT into tb_phoenix(Id, Name,Company) values (104,'phoenix_user4','company4');
select * from tb_phoenix;
```



- Phoenix表删除数据

```
delete from tb_phoenix where id=104;
select * from tb_phoenix;
```



- Phoenix表更新数据

```
UPSERT into tb_phoenix(Id, Name,Company) values (102,'phoenix_user2_up','company2_up');
select * from tb_phoenix;
```