



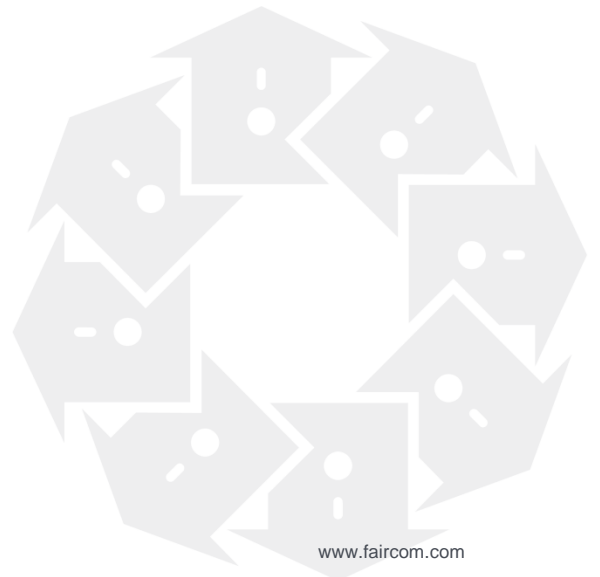
FairCom White Paper

c-treeACE Connection Strings



Contents

1.	c-treeACE SQL Connection Strings.....	1
2.	Basic Connection String Attributes and Defaults.....	1
3.	c-treeACE Interactive SQL - ISQL	2
4.	c-treeACE ODBC Data Sources	3
5.	ADO.NET Connection String	4
6.	JDBC URL Connection String	6
7.	Adding c-treeACE JDBC to a Third-Party JDBC Tool.....	6
8.	c-treeACE Python	8
9.	c-treeACE PHP	8
10.	Index	9



1. c-treeACE SQL Connection Strings

The FairCom c-treeACE SQL database provides a variety of interfaces. This document provides the connection strings required for establishing a connection through some of the most popular interfaces:

- *Interactive SQL* (page 2)
- *c-treeACE ODBC* (page 3)
- *c-treeACE ADO.NET* (page 4)
- *c-treeACE JDBC* (page 6)
- *JDBC with Third-Party Tool (ReadyAPI)* (page 6)
- *c-treeACE Python* (page 8)
- *c-treeACE PHP* (page 8)

The basic parameters you will use with these connection strings are described in this topic:

- *Basic Connection String Attributes and Defaults* (page 1)

Special considerations are given in the remaining topics in this guide.

2. Basic Connection String Attributes and Defaults

The following are basic c-treeACE SQL parameters and definitions used in all drivers and interfaces described below.

- *Username* (user) - Username required to access a c-treeACE SQL database
- *Password* (password) - Password associated with a specific user required to access a c-treeACE SQL Database
- *Database* (database-name) - A specific database containing all SQL tables and resources
Default: ctreesql
- *Service* (tcp-port) - The TCP/IP port assigned to the c-treeACE SQL database process
Default: 6597
- *Host* (host or machine-name) - Host address for machine running the c-treeACE SQL database process
Default: localhost





3. c-treeACE Interactive SQL - ISQL

```
>isql -u <user> -p <password> <connection-string>
```

A standard c-treeACE SQL connection string consists of
tcp-port@machine-name:database-name

Example

```
>isql -u ADMIN -p ADMIN 6597@localhost:ctreeSQL
```

TLS/SSL Example

```
>isql -u admin -p ADMIN ssl:6597@localhost:ctreesql
```



4. c-treeACE ODBC Data Sources

Invoke the ODBC Data Source Administrator. Select c-treeACE SQL from the list of installed system DSN drivers and fill in the dialog fields as shown below:

The screenshot shows the 'c-treeACE ODBC Setup' dialog box. It contains the following fields and values:

- Data Source Name: c-treeACE ODBC Driver
- Description: c-treeACE ODBC Driver
- Host: localhost
- Database: ctreesQL
- User ID: admin
- Password: [masked with 5 dots]
- Service: 6597
- Default Fetch Size: [empty]
- Default Query Timeout: [empty]
- Preserve Cursor: OFF
- Scrollable Cursor: OFF
- Client Character Set: "UTF8" (CP CP_UTF8)
- SSL: c:\certs\client.pem
- Options: [empty]

Buttons: OK (highlighted with a blue border), Cancel

- **Data Source Name** (DSN) - Local name for c-treeACE SQL data source
- **Description** - Optional descriptive text.
- **Host, Database, User ID, and Password** - The driver uses these values if the application does not supply them. If no you leave these blank, the user is prompted when the application connects.
- **Service**
- **Default Fetch Size** - Size (in bytes) used to fetch multiple rows from the server reducing network requests resulting in performance gains. Connection string attribute `FETCH_SIZE=[bytes]*`
Default - 5000



- *Default Query Timeout* - Query Timeout (in seconds) Connection string attribute: `QUERY_TIMEOUT=[number of seconds] *`
- *Preserve Cursor* - Yes or No depending on your application requirements.
- *Client Character Set* - Client character set.
- *Options* - Optional c-treeACE SQL specific parameters (Refer to online documentation).

* Connection string settings take precedence over defined DSN values.

5. ADO.NET Connection String

ADO.NET connection strings are passed into *CtreeSqlConnection* objects as semicolon-separated Name-Value pairs. The Name portion of the Name-Value pair is not case-sensitive.

The following table lists Name-Value pairs used in connection strings for the c-treeACE SQL ADO.NET Data Provider.

You can use any of the synonyms as a replacement for the Name portion of the pair to remain cross-compatible with usage of other database products. The most common synonyms are shown below.

The minimum required are *User ID* and *Password*. If other values are not specified, default values will be assigned as noted.

Name	Default Value	Description
User ID Synonyms <ul style="list-style-type: none"> • <i>user id</i> • <i>userid</i> • <i>uid</i> • <i>user</i> • <i>user name</i> • <i>username</i> 	None	The user name for login.
Password Synonyms <ul style="list-style-type: none"> • <i>password</i> • <i>pwd</i> • <i>user password</i> • <i>userpassword</i> 	None	The password for the user.
Initial Catalog Synonyms <ul style="list-style-type: none"> • <i>database</i> • <i>initial catalog</i> 	ctreeSQL	The name of the c-treeACE SQL database.



Name	Default Value	Description
Data Source Synonyms <ul style="list-style-type: none"> • <i>data source</i> • <i>datasource</i> • <i>server</i> • <i>host</i> 	localhost	The TCP/IP address of the c-treeACE SQL installation.
Port Number Synonyms <ul style="list-style-type: none"> • <i>port</i> • <i>service</i> • <i>port number</i> 	6597	The TCP/IP port number used by c-treeACE SQL.
Pooling	true	User client side connection pooling.
Max Pool Size Synonyms <ul style="list-style-type: none"> • <i>max pool size</i> • <i>maxpoolsize</i> 	100	Maximum number of pooled connections.
Connection Lifetime Synonyms <ul style="list-style-type: none"> • <i>connection lifetime</i> • <i>connectionlifetime</i> 	0	
Connection Timeout Synonyms <ul style="list-style-type: none"> • <i>timeout</i> • <i>connection timeout</i> • <i>connectiontimeout</i> 	15	Number of seconds to wait before the connection times out with no response from c-treeACE SQL.
Isolation Level Synonyms <ul style="list-style-type: none"> • <i>isolation level</i> • <i>isolationlevel</i> 	<i>ReadCommitted</i>	The transaction isolation level for the connection.
ssl		(optional) Values of basic (no peer certificate authentication) or peerAuthentication (server certificate authentication)
sslcert		Required when peerAuthentication is requested to provide certificate defined server name

Example

A typical connection string for the c-treeACE ADO.NET Data Provider would be composed of:

```
"User ID=ADMIN;Password=ADMIN;database=ctreeSQL;server=localhost;port=6597"
```

A minimal connection string can be:

```
"User=ADMIN;Password=ADMIN"
```

TLS/SSL Examples

```
"UID=ADMIN;PWD=ADMIN;Database=ctreeSQL;Server=localhost;Service=6597;ssl=basic";
```

```
"UID=ADMIN;PWD=ADMIN;Database=ctreeSQL;Server=localhost;Service=6597;ssl=peerAuthentication;sslcert=support.faircom.com";
```



6. JDBC URL Connection String

Beginning with c-treeACE V11.2 and c-treeRTG V2, the connection string is in the following format:

```
jdbc:ctree://<host>[:portnumber]/<dbname>[?param=value [&param=value] ...]
```

The valid values for `param` are:

- `characterEncoding` - Replace encoding with a valid Java encoding name (e.g., US-ASCII, ISO-8859-1, UTF-8, etc.).
- `password`
- `User`
- `ssl` - Values of `basic` (no peer certificate authentication) or `peerAuthentication` (server certificate authentication)

When `peerAuthentication` is requested, the client's trust store must contain the server's certificate as shown in the example below.

The tutorials use a connection string that is set for the default configuration:

```
"jdbc:ctree://localhost:6597/ctreeSQL", "ADMIN", "ADMIN"
```

TLS/SSL Examples

```
Connection c = getConnection("jdbc:ctree://localhost:6597/ctreeSQL?ssl=basic");
```

```
System.setProperty("javax.net.ssl.trustStore", "TrustStore.key");
```

```
System.setProperty("javax.net.ssl.trustStorePassword", "mypassword");
```

```
Connection c = getConnection("jdbc:ctree://localhost:6597/ctreeSQL?ssl=peerAuthentication");
```

For backward compatibility, the older format ("jdbc:ctree:6597@localhost:ctreeSQL", "ADMIN", "ADMIN") is still supported but should be considered deprecated.

7. Adding c-treeACE JDBC to a Third-Party JDBC Tool

The c-treeACE JDBC API can be used with third-party applications such as ReadyAPI application from SmartBear. The steps below explain how to install and configure the c-treeACE JDBC Driver to work with this application.

You will need to know how to load a new JDBC Driver within the ReadyAPI application, as explained on their website:

<https://support.smartbear.com/readyapi/docs/testing/data-driven/drivers/install/index.html>

Steps 1 and 2 from the link shown above are accomplished by copying the *ctreeJDBC.jar* file to the ReadyAPI *bin/ext* directory, such as:



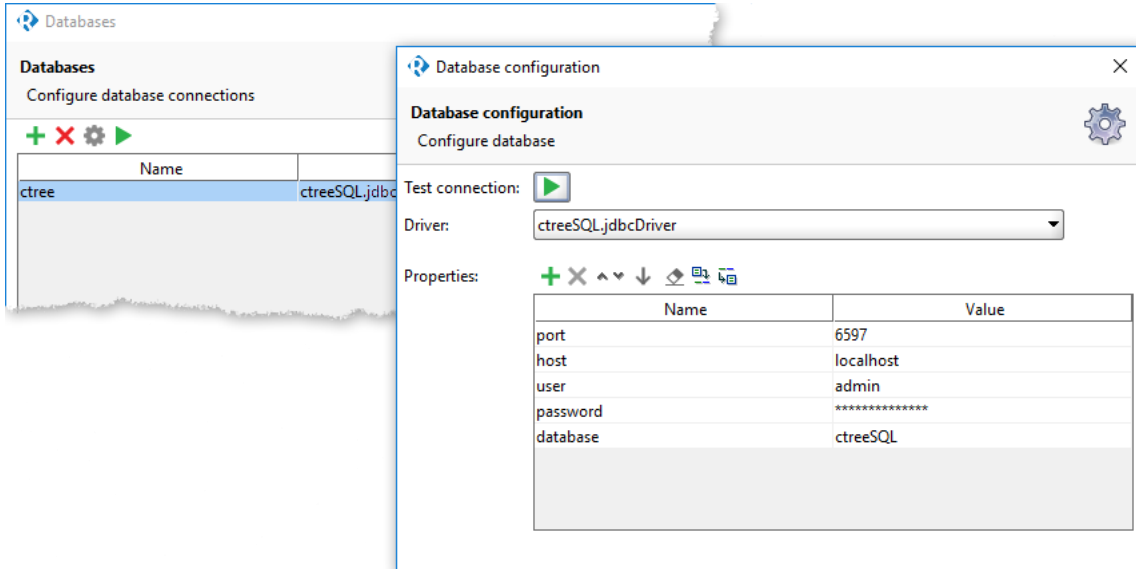
Adding c-treeACE JDBC to a Third-Party JDBC Tool

C:\Program Files\SmartBear\ReadyAPI-2.4.0\bin\ext

Make sure you have Administrator privileges to be able to copy there.

You can find the *ctreeJDBC.jar* file in your c-treeACE PRO package in this default location:
VFairCom\11.5.0\winX64\lib\sql.jdbc

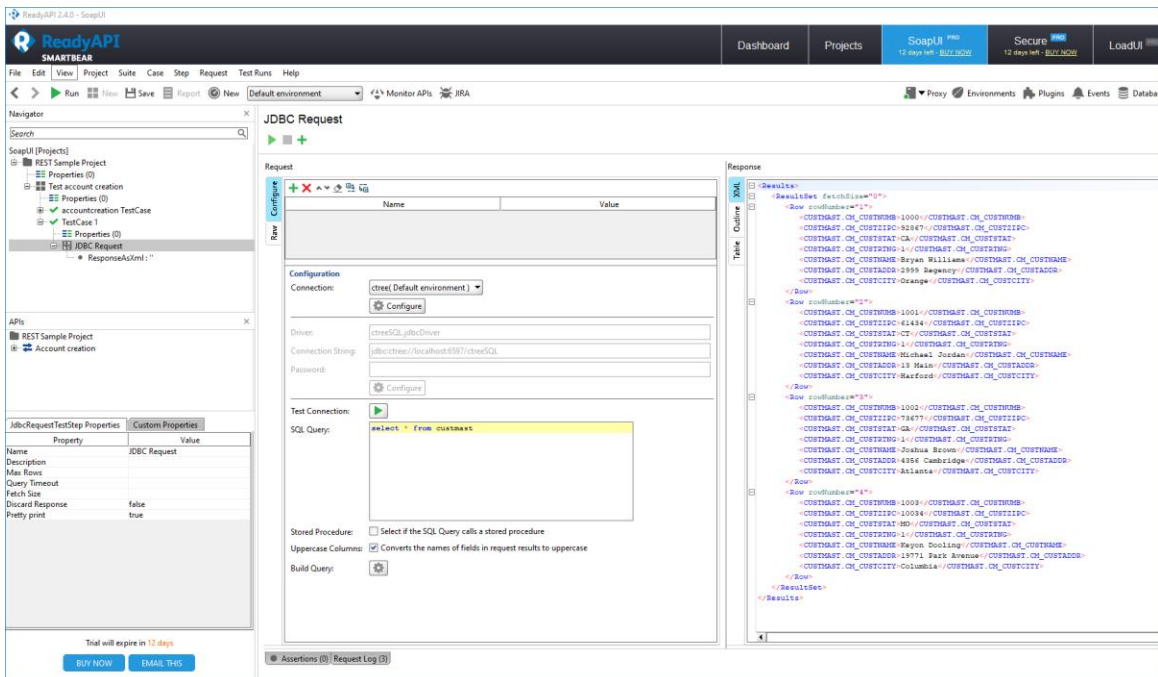
Once you restart the ReadyAPI, you can configure the c-treeACE JDBC Driver as shown below:



This corresponds to the following c-treeACE JDBC connection string:

```
jdbc:ctree://<host>[:portnumber]/<dbname>[?param=value[&param=value]...]
```

The image below shows a select * from one of the c-tree sample tables:





8. c-treeACE Python

Python connections take a comma separated list of name-value pairs

- *user*='user'
- *password*='password'
- *database*='database-name'
- *host*='machine-name'
- *port*='tcp-port'

Example

```
pyctree.connect(user='ADMIN',password='ADMIN',database='ctreeSQL',host='localhost',port='6597')
```

9. c-treeACE PHP

```
ctsqli_connect("connection-string", "username", "password");
```

A standard c-treeACE SQL connection string consists of:

tcp-port@machine-name:database-name

10. Index

A
Adding c-treeACE JDBC to a Third-Party JDBC
 Tool6
ADO.NET Connection String4

B
Basic Connection String Attributes and Defaults..... 1

C
c-treeACE Interactive SQL - ISQL.....2
c-treeACE ODBC Data Sources.....3
c-treeACE PHP.....8
c-treeACE Python8
c-treeACE SQL Connection Strings 1

J
JDBC URL Connection String6

