

Tracker Sync Web Service Documentation

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This document describes the Tracker Sync Web Service configuration and implementation.

Directory Structure

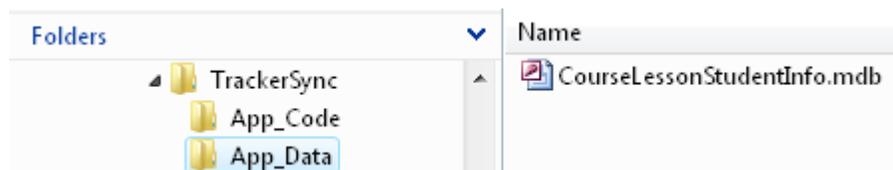
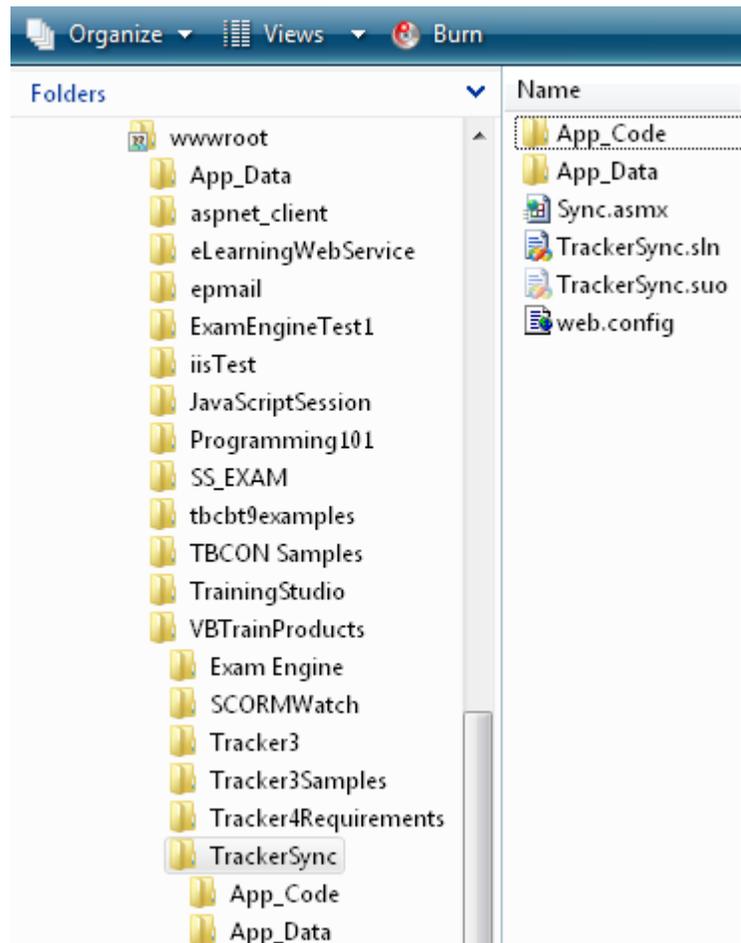
The layout of the web service directory structure is shown to the right. You would normally copy the entire *TrackerSync* directory structure to your web server and then configure it as described in the next section. The *Sync.asmx* file is the actual web service referenced by the *Tracker Sync Editor* application. *TrackerSync.sln* is a Visual Studio .NET 2005 solution file for editing the web service program. The *web.config* file has a number of user-configurable settings as discussed later in this document.

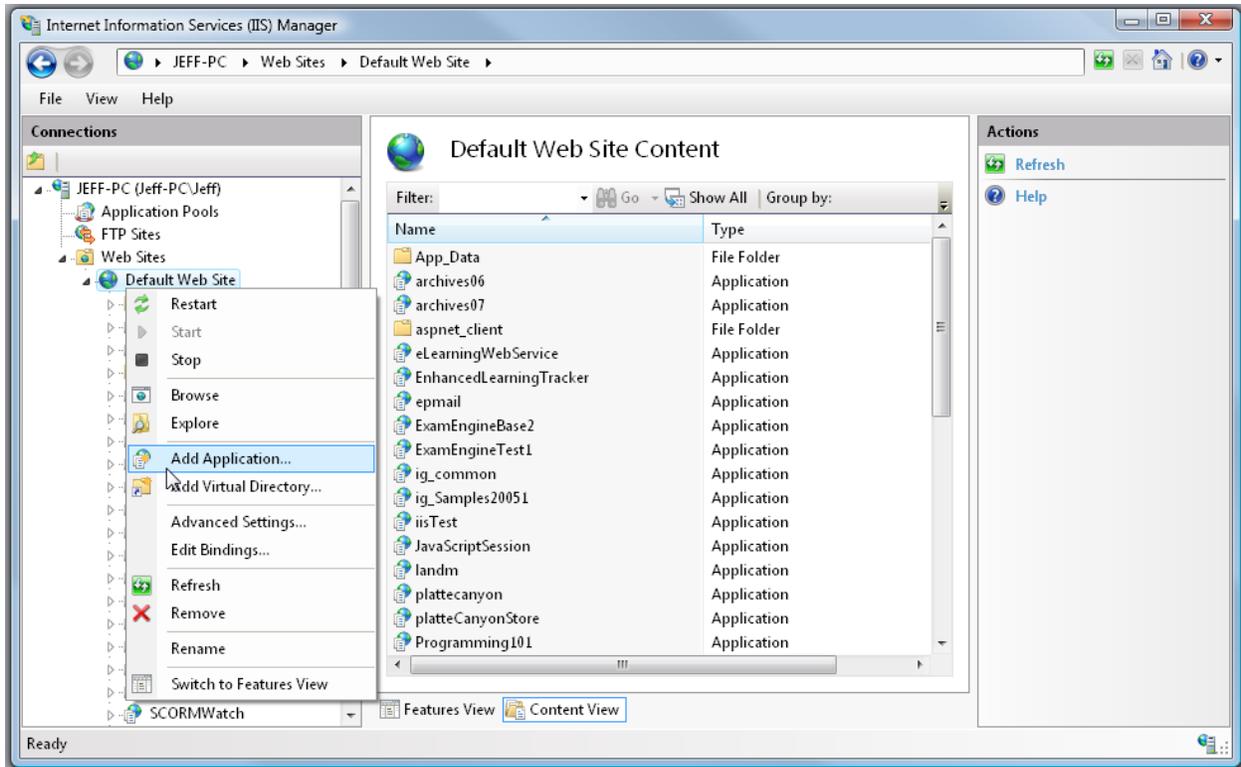
Inside the *App_Code* directory is a code file that contains the programming of the web service. It should not be edited directly but rather should be maintained through editing the solution via Visual Studio .NET 2005.

The *App_Data* directory contains the *CourseLessonStudentInfo.mdb* Access database as shown to the right. This database contains “assignment” tables that map up the TBK Tracker courses, lessons, and students to the corresponding data in the Tracker.Net instance. These tables are covered in detail later in this document.

Deploying the Web Service

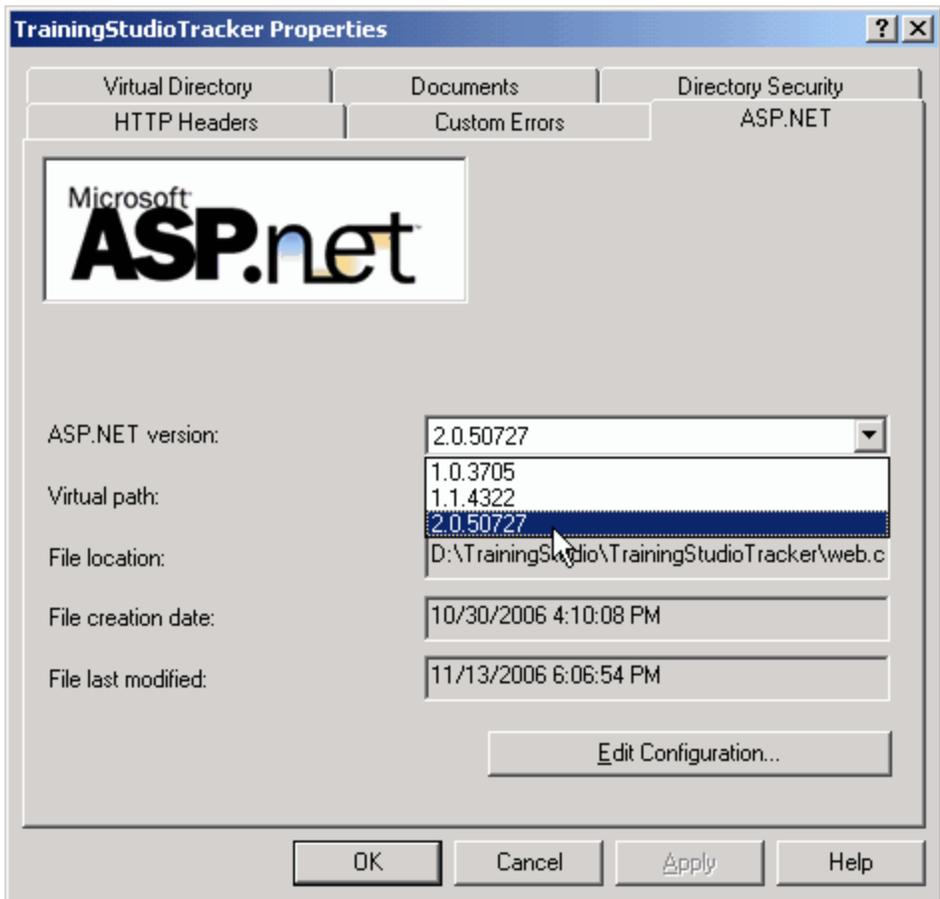
To begin working with the web service, you must put its directory structure on the web server and make it into an ASP.NET 2.0 virtual directory/application. This is shown below.





If your local computer has Internet Information Services (IIS) and ASP.NET installed, you can do this locally for testing as well. If you have multiple versions of the .NET runtime on the web server, then you will be able to choose 2.0 from the ASP.NET tab as shown to the right (note that this screen capture is from a different virtual directory but the choices would be the same for *TrackerSync*).

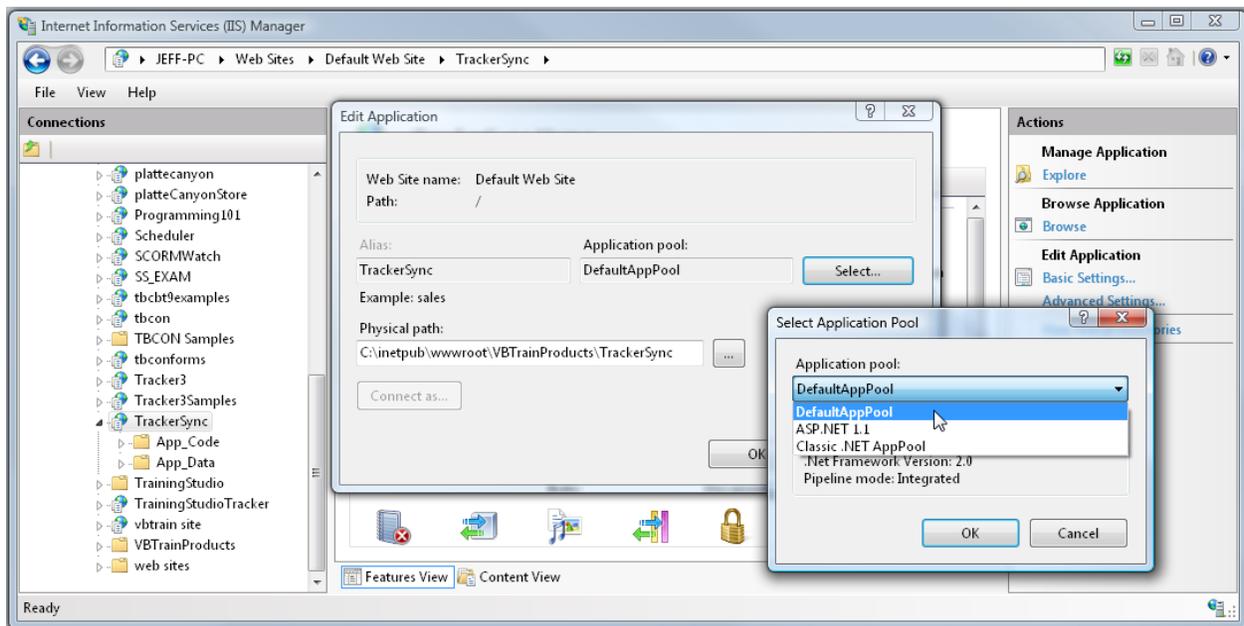
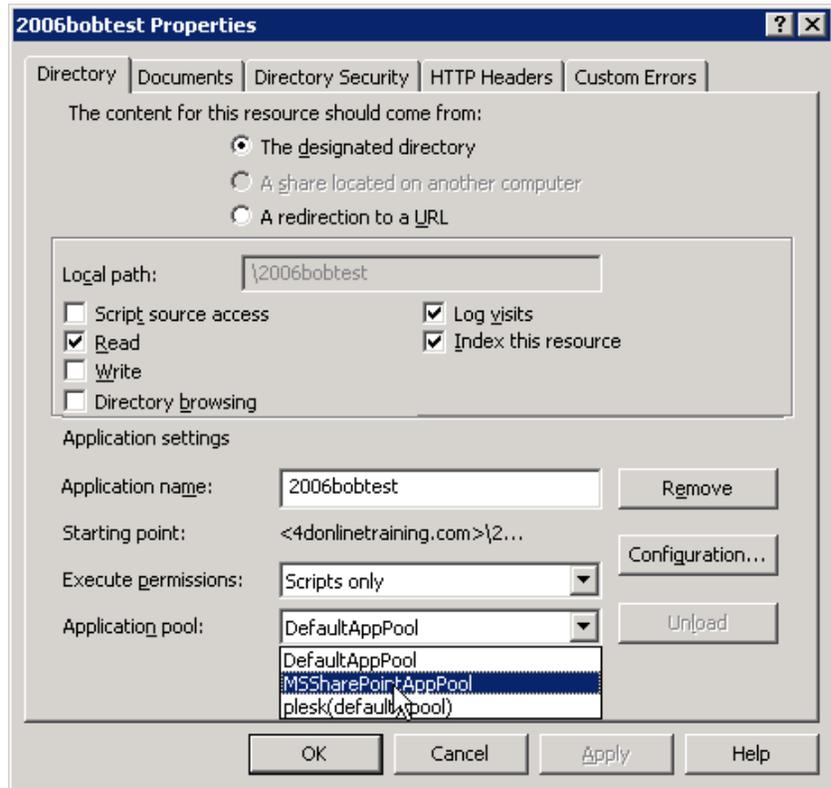
Note: If you are running IIS 6 or later, it is critical that



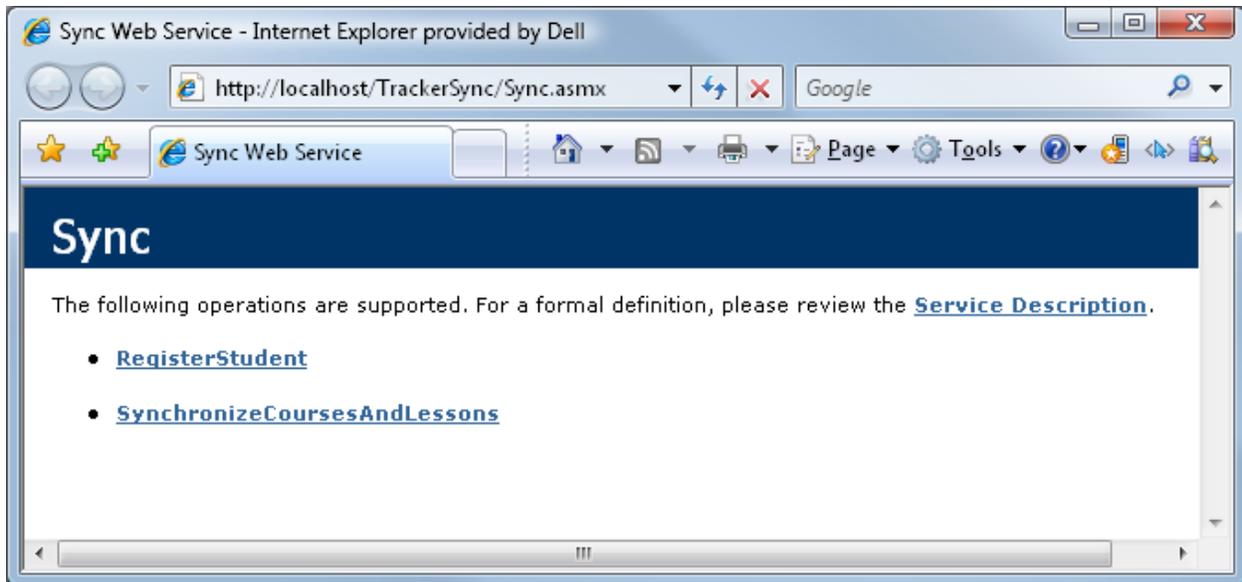
you select an application pool that only has ASP.NET 2.0 applications in it.

Mixing .NET 1.1 and 2.0 applications within the same pool can cause both the web service and the 1.1 application to fail. The setting for an application pool is shown to the right.

Another view with IIS 6 and the Vista interface is shown below.



You can tell if the web service is set up correctly if you can navigate to the *Sync.asmx* file and see a screen like the one below.



Note that this URL is what is required by the users of the *Tracker Sync Editor* application.

Editing the web.config File

The web.config file located in the main directory of the web service has a number of user-configurable settings. These are all located in the `<appSettings>` area of the file. Each setting is described below. After editing the web.config (and keeping a backup copy of the original), you can replace the one on your web server.

1. **TrackerNetSyncKey.** This key must match the key being sent by the Tracker Sync Editor as described later in this document.

```
<add key="TrackerNetSyncKey" value="1111111111" />
```

2. **SendEmailNotificationOfSynchronization.** This setting controls whether the web service sends an email when it receives a synchronization. It can have a value of True or False.

```
<add key="SendEmailNotificationOfSynchronization" value="True" />
```

3. **NotificationEmailAddress.** This is the email address(es) to which notification emails are sent. Separate multiple emails by a comma. This setting is only relevant if *SendEmailNotificationOfSynchronization* is true.

```
<add key="NotificationEmailAddress" value="jrhodes@plattecanyon.com" />
```

4. **NotificationEmailMessage.** This is the body of the notification email message. There are placeholders for variable pieces of information as follows.

Placeholder	Value
{0}	Carriage Return Line Feed (e.g., a hard return)
{1}	TBK Tracker Student ID. This in the format of <Last Name>*<First Name>*<Middle Initial>. An example would be Mullins*Shawn**
{2}	TBK Tracker Database ID. This is the identifier from the TBK Tracker database. This is helpful is there are potentially multiple TBK Tracker databases that could be synchronized.
{3}	TBK Tracker Course ID List. This is a comma-delimited list of the TBK Tracker Course ID numbers of the courses being synchronized. Note that these Course ID numbers do not necessarily match those of the Tracker.Net instance but that the associated Tracker.Net Course ID is stored in the <i>TBKTrackerTrackerNetCourseAssignment</i> table of the <i>CourseLessonStudentInfo.mdb</i> database.
{4}	TBK Tracker Lesson ID List. This is a comma-delimited list of the TBK Tracker Lesson ID numbers of the courses being synchronized. Note that these Lesson ID numbers do not necessarily match those of the Tracker.Net instance but that the associated Tracker.Net Lesson ID is stored in the <i>TBKTrackerTrackerNetLessonAssignment</i> table of the <i>CourseLessonStudentInfo.mdb</i> database.

This setting is only relevant if *SendEmailNotificationOfSynchronization* is true.

```
<add key="NotificationEmailMessage" value=" Dear
Administrator,{0}{0}There has been an TBK Tracker to Tracker.Net
synchronization from Student ID '{1}' on TBK Tracker database
'{3}'. The synchronized TBK Tracker Course ID's are '{2}' and
Lesson ID's are '{4}' {0}{0}Sincerely,{0}{0}The Tracker Sync
Team" />
```

- NotificationEmailSubject.** This is the subject line of the notification email. This setting is only relevant if *SendEmailNotificationOfSynchronization* is true.

```
<add key="NotificationEmailSubject" value=" Tracker.Net
Synchronization Notification" />
```

- NotificationEmailReplyAddress.** This is the reply address of the notification email. This setting is only relevant if *SendEmailNotificationOfSynchronization* is true.

```
<add key="NotificationEmailReplyAddress"
value="support@plattecanyon.com" />
```

- smtpServer.** This is the Simple Mail Transfer Protocol (SMTP) server for the notification email. This will be specific to your web server. If you are running the web service on your local computer for testing, you would put the machine name in for this setting. You can get the machine name via *My Computer – Properties*. Using the machine

name or “(local)” works for some web servers as well. This setting is only relevant if *SendEmailNotificationOfSynchronization* is true.

```
<add key="smtpServer" value="relay.yourmailserver.com" />
```

8. **ConnectionString.** This is Tracker.Net connection information needed to connect to the Tracker.Net instance you are synchronizing. This should match the *ConnectionString* of the web.config file in the root of the Tracker.Net instance itself.

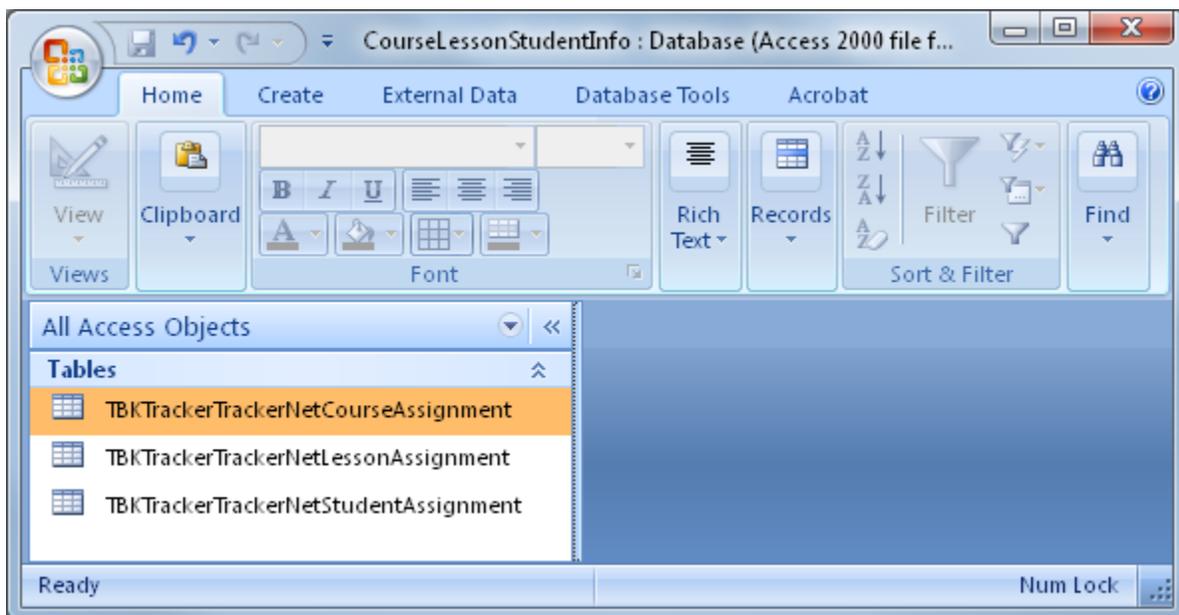
```
<add key="ConnectionString" value="server=(local);uid=happy;pwd=happy;database=Tracker3SynchTest" />
```

9. **PasswordKey.** This is Tracker.Net password key used to encrypt passwords. It needs to match the equivalent setting in the Tracker.Net instance you are synchronizing.

```
<add key="PasswordKey" value="ThisIsATest" />
```

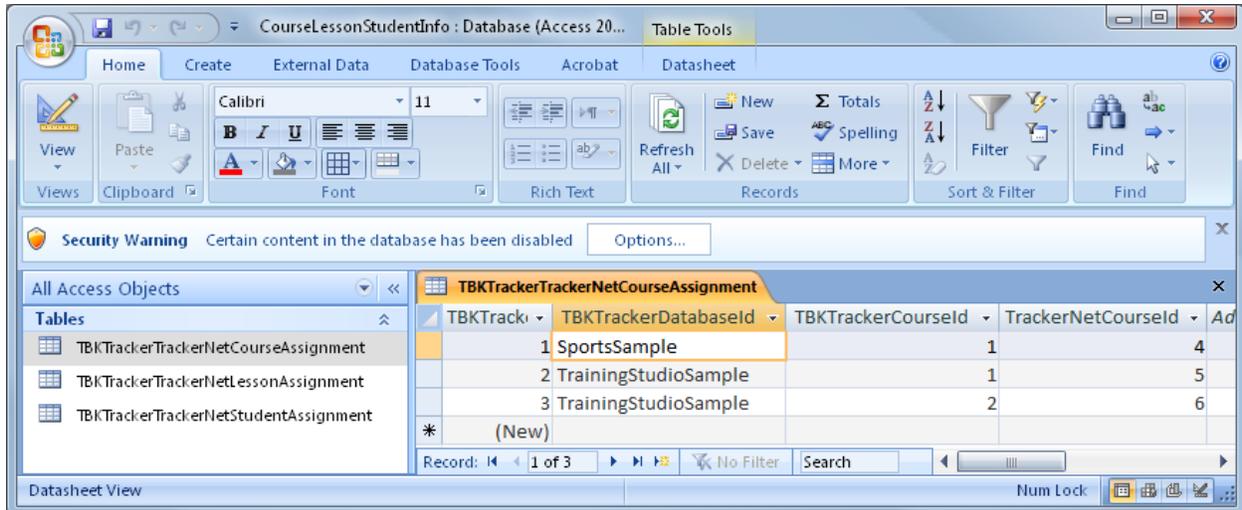
Editing the *CourseLessonStudentInfo* Database

As mentioned earlier in this document, assignment information between TBK Tracker and Tracker.Net is stored in the *CourseLessonStudentInfo.mdb* file located in the \App_Data directory. An Access database is used rather than a more powerful database like SQL Server since this is largely read-only access and many target end-user organizations may not have a SQL Server license. However, the web service may be edited to use other databases if desired. The tables within the database are shown below.



***TBKTrackerTrackerNetCourseAssignment* Table**

This table matches up the TBK Tracker Course ID with the corresponding Course ID for the Tracker.Net instance.



The required data is shown below.

TBKTrackerDatabaseId

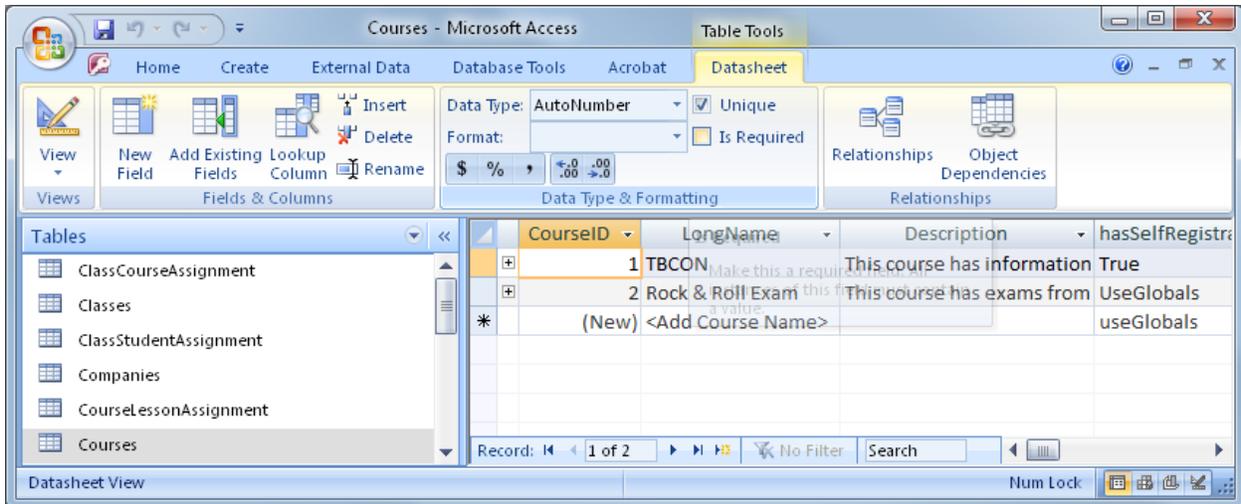
This is the identifier from configuration file (typically *tbksettg3.ini*) and selected by the user in the *Configuration Editor* screen of the *Tracker Sync Editor* application. The identifier corresponds to this part of the configuration file:

```
[Databases]  
TrainingStudioSample=JET  
sportsSample=JET  
TraingStudioSample_SQL=SQL
```

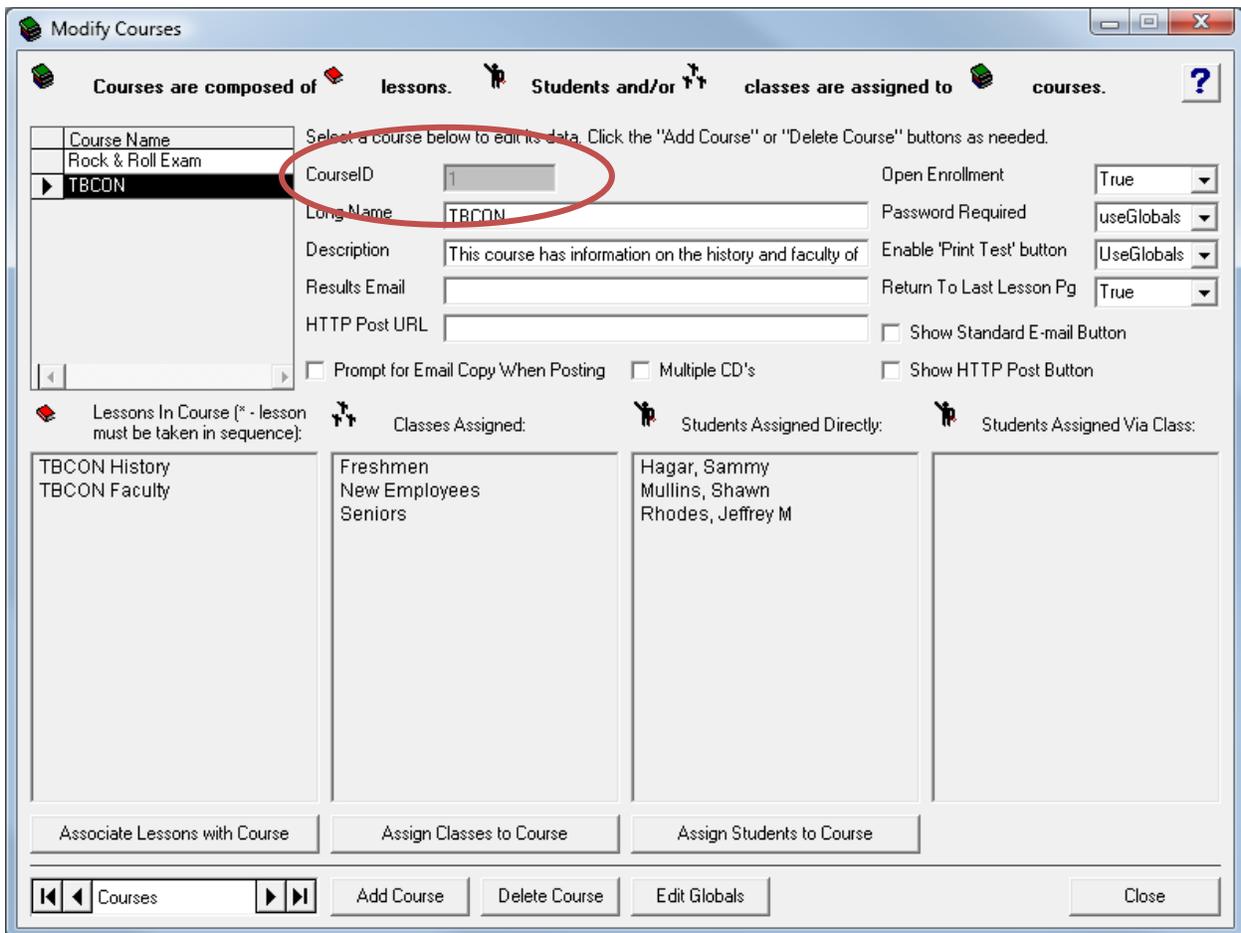
The element is used since different databases will have the same TBK Tracker Course ID that will presumably match up to a different Tracker.Net Course ID.

TBKTrackerCourseId

This is the *CourseID* from the *Courses* table in your TBK Tracker database as shown below. This course must have a corresponding course in the Tracker.Net instance in order for synchronization to be possible.

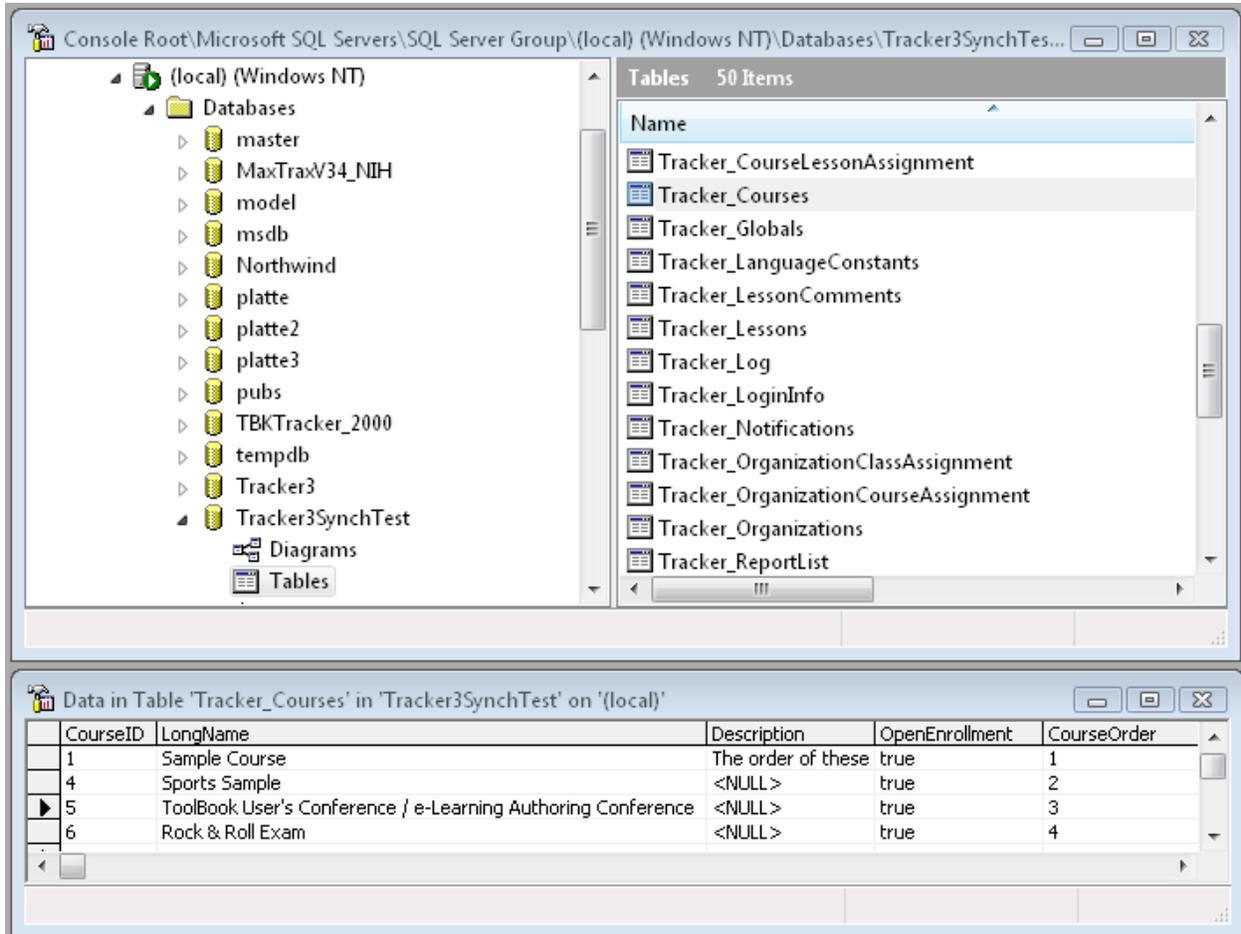


If you do not want to open the database directly in Access, you can see the CourseID in the *TBK Tracker Administrator* as shown below.



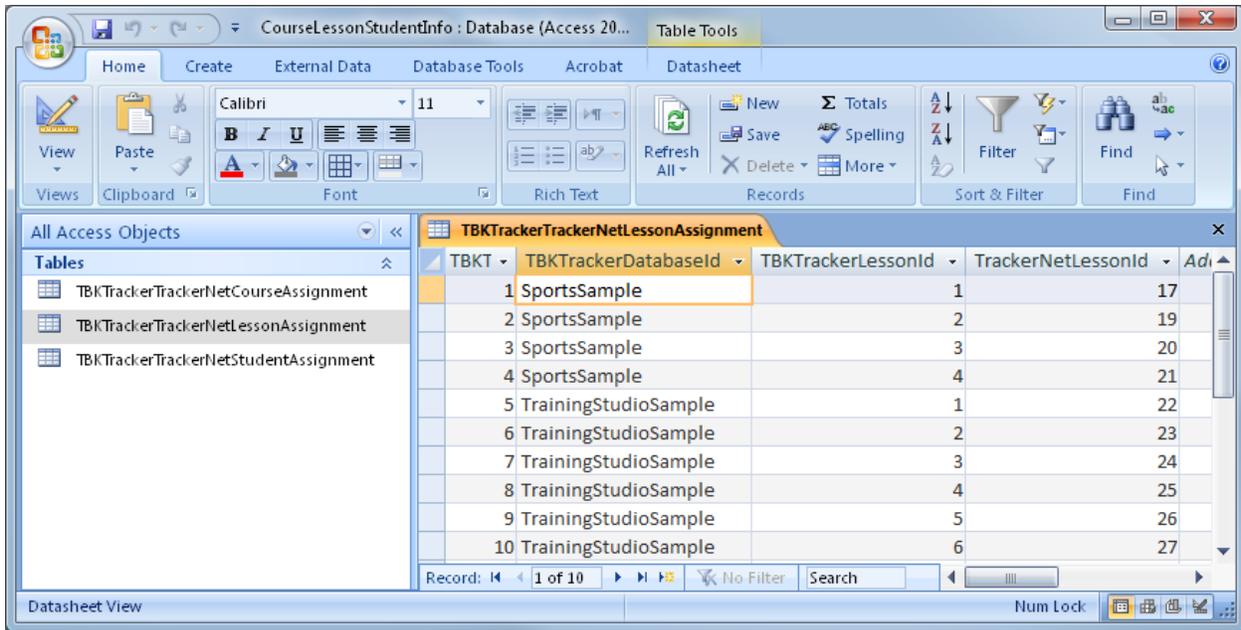
TrackerNetCourseId

This is the *CourseID* from the *Tracker_Courses* table in the Tracker.Net instance with which you are synchronizing. You will need to open this table in SQL Server in order to get this value, as shown below.



TBKTrackerTrackerNetLessonAssignment Table

This table matches up the TBK Tracker Lesson ID with the corresponding Lesson ID for the Tracker.Net instance.



The required data is shown below.

TBKTrackerDatabaseId

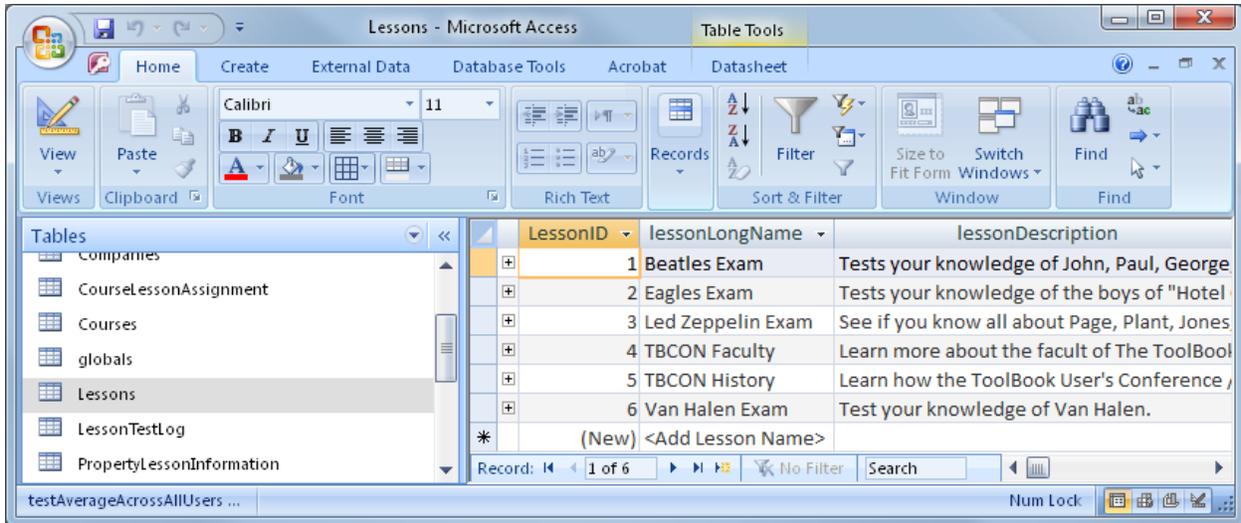
This is the identifier from configuration file (typically *tbksettg3.ini*) and selected by the user in the *Configuration Editor* screen of the *Tracker Sync Editor* application. The identifier corresponds to this part of the configuration file:

```
[Databases]
TrainingStudioSample=JET
sportsSample=JET
TraingStudioSample_SQL=SQL
```

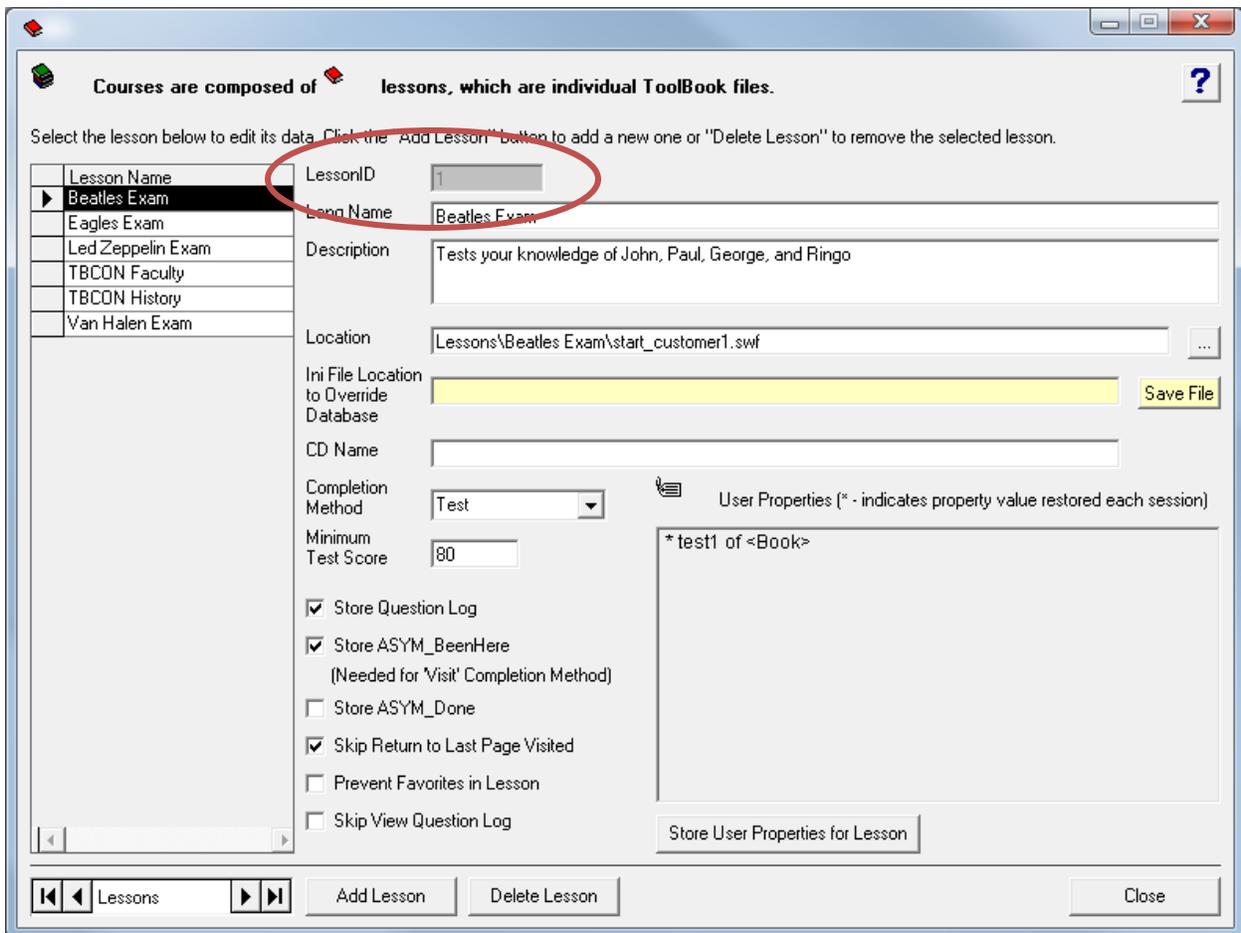
The element is used since different databases will have the same TBK Tracker Lesson ID that will presumably match up to a different Tracker.Net Lesson ID.

TBKTrackerLessonId

This is the *LessonID* from the *Lessons* table in your TBK Tracker database as shown below. This lesson must have a corresponding lesson in the Tracker.Net instance in order for synchronization to be possible.



If you do not want to open the database directly in Access, you can see the LessonID in the *TBK Tracker Administrator* as shown below.



TrackerNetLessonId

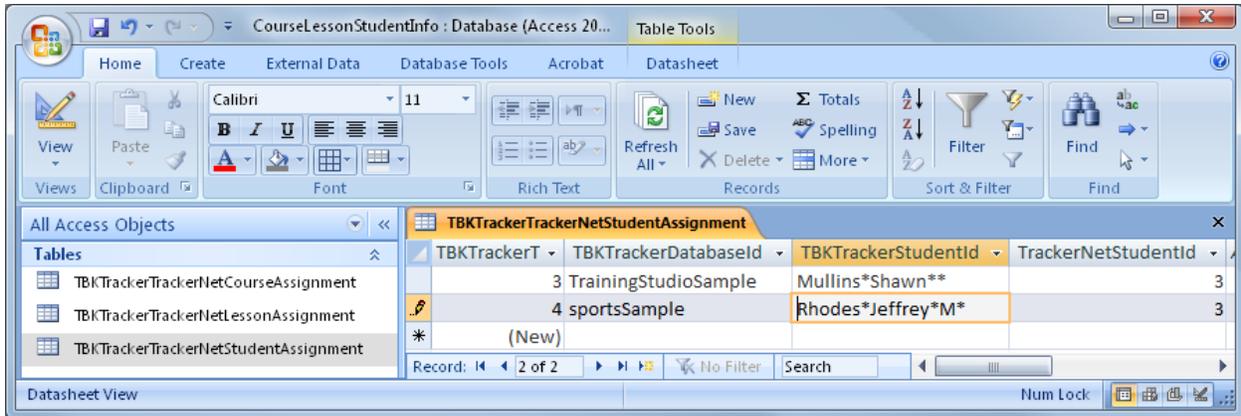
This is the *LessonID* from the *Tracker_Lessons* table in the Tracker.Net instance with which you are synchronizing. You will need to open this table in SQL Server in order to get this value, as shown below.

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the server hierarchy for '(local) (Windows NT)'. Under 'Databases', the 'Tracker3SynchTest' database is expanded, showing 'Tables'. The right pane lists 50 tables, with 'Tracker_Lessons' selected. Below this, a window titled 'Data in Table 'Tracker_Lessons' in 'Tracker3SynchTest' on '(local)'' displays the following data:

LessonID	LessonLongName	LessonDescription	LessonLocation	LessonMasteryScore	LaunchData
17	Basketball Quiz	<NULL>	Basketball.htm	<NULL>	<NULL>
19	Golf Quiz	<NULL>	Golf.htm	<NULL>	<NULL>
20	Soccer Quiz	<NULL>	soccer.htm	<NULL>	<NULL>
21	Tennis Quiz	<NULL>	tennis.htm	<NULL>	<NULL>
22	Beatles Exam	<NULL>	Beatles Exam	<NULL>	<NULL>
23	Eagles Exam	<NULL>	Eagles Exam	<NULL>	<NULL>
24	Led Zeppelin Exam	<NULL>	Led Zeppelin Exam	<NULL>	<NULL>
25	TBCON Faculty	<NULL>	TBCON Faculty	<NULL>	<NULL>
26	TBCON History	<NULL>	TBCON History	<NULL>	<NULL>
27	Van Halen Exam	<NULL>	Van Halen Exam	<NULL>	<NULL>

TBKTrackerTrackerNetStudentAssignment Table

This table does not need to be populated in advance. If it is not populated, then the *TrackerSync* web service uses the Tracker.Net username and password entered in the *Tracker Sync Editor* to retrieve the corresponding Student ID from the Tracker.Net instance with which you are synchronizing. But if you have pre-populated the TBK Tracker Student ID's and thus have access to this data, you can populate it in advance to avoid the need to look up the data. If not, the *TrackerSync* data will only go to the Tracker.Net instance the first time and will write the data to this table for use in subsequent synchronizations.



The required data is shown below.

TBKTrackerDatabaseId

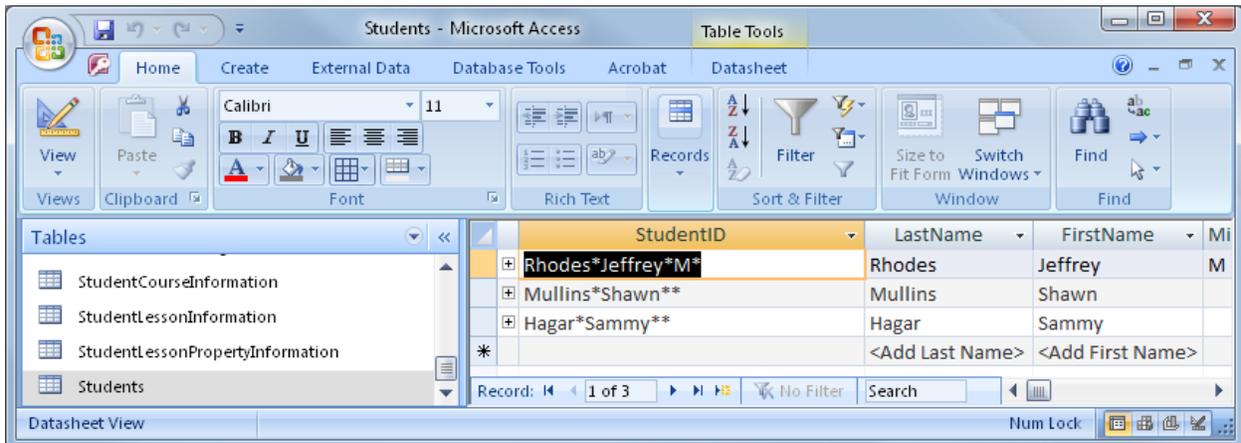
This is the identifier from configuration file (typically *tbksettg3.ini*) and selected by the user in the *Configuration Editor* screen of the *Tracker Sync Editor* application. The identifier corresponds to this part of the configuration file:

```
[Databases]
TrainingStudioSample=JET
sportsSample=JET
TraingStudioSample_SQL=SQL
```

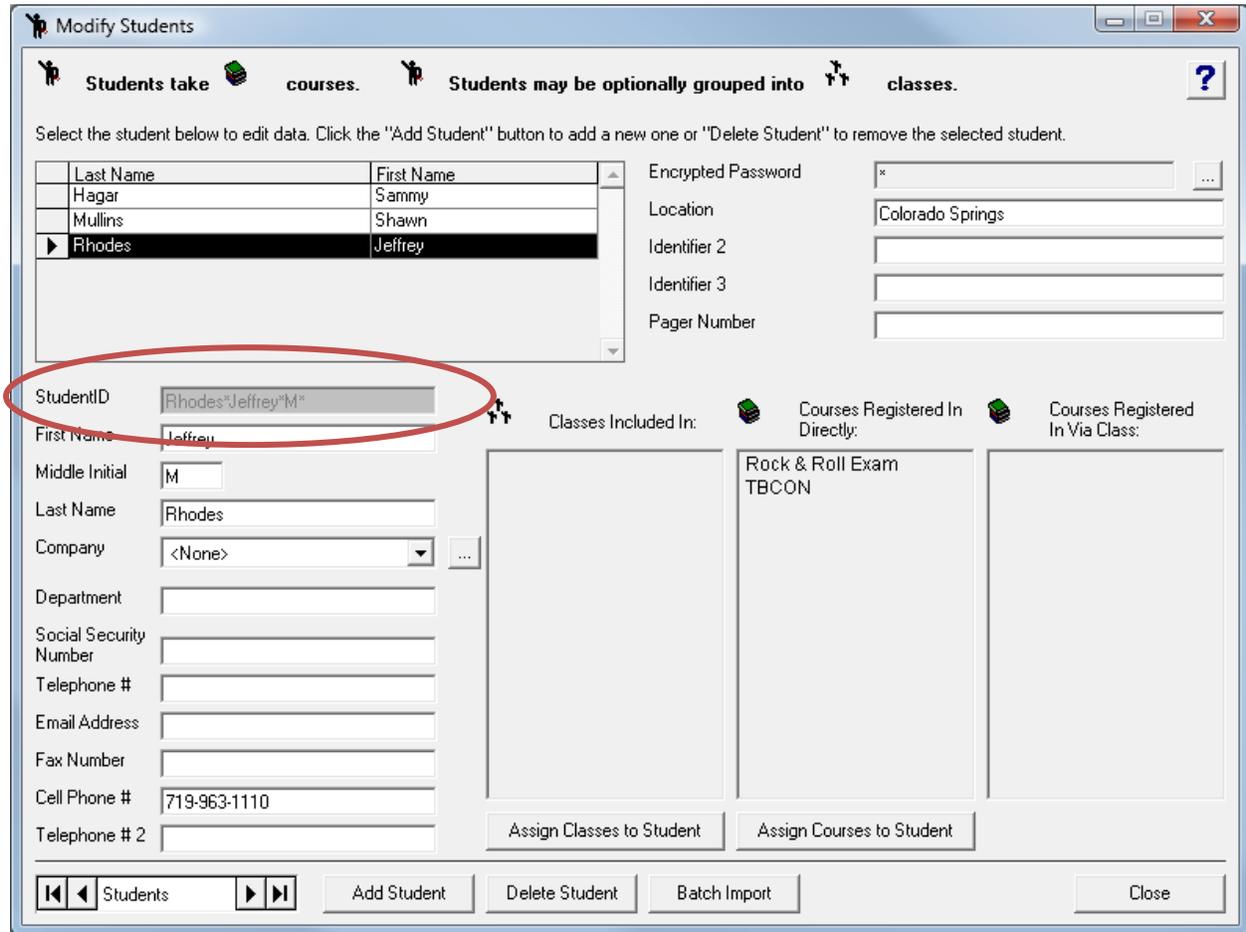
The element is used since different databases will have the same TBK Tracker Lesson ID that will presumably match up to a different Tracker.Net Lesson ID.

TBKTrackerStudentId

This is the *StudentID* from the *Students* table in your TBK Tracker database as shown below. This student must have a corresponding student in the Tracker.Net instance in order for synchronization to be possible.

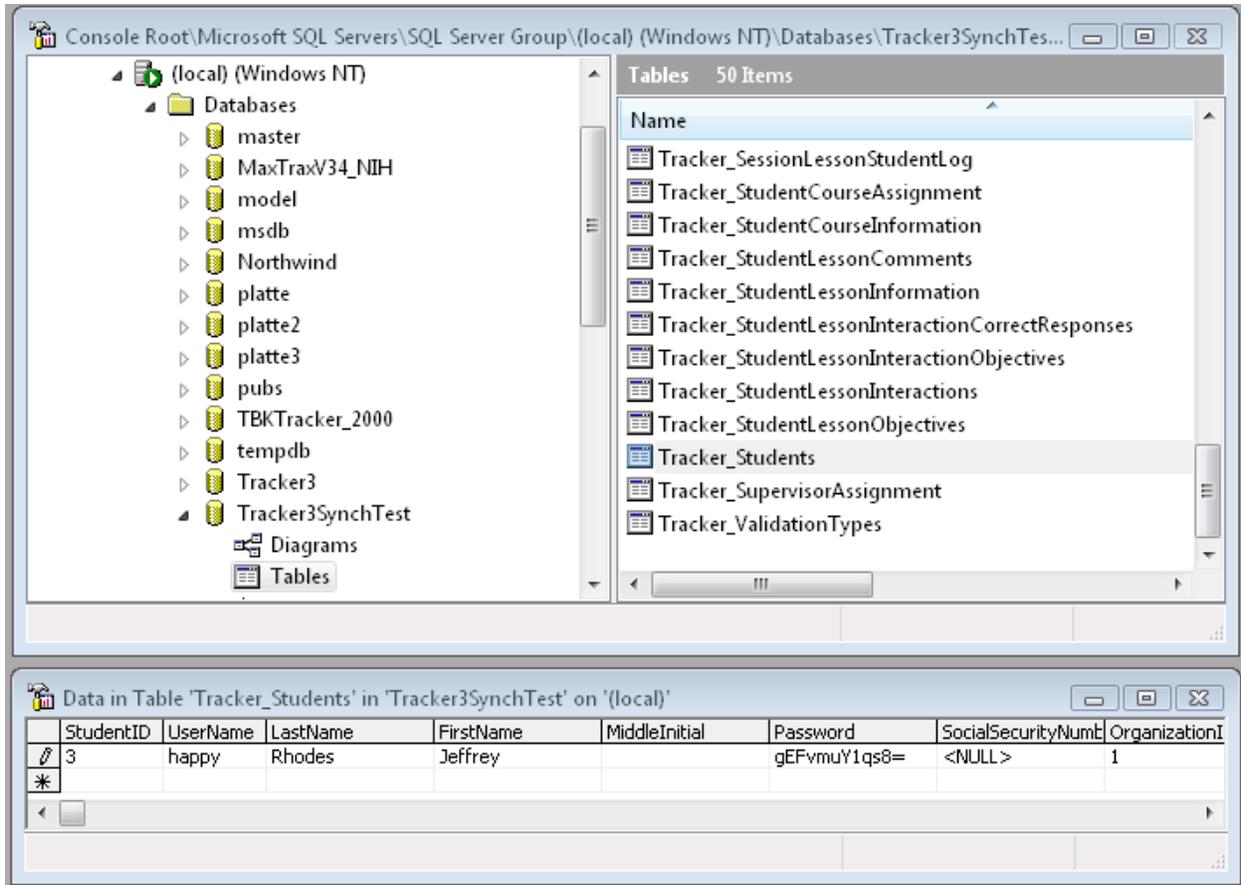


If you do not want to open the database directly in Access, you can see the StudentID in the *TBK Tracker Administrator* as shown below.



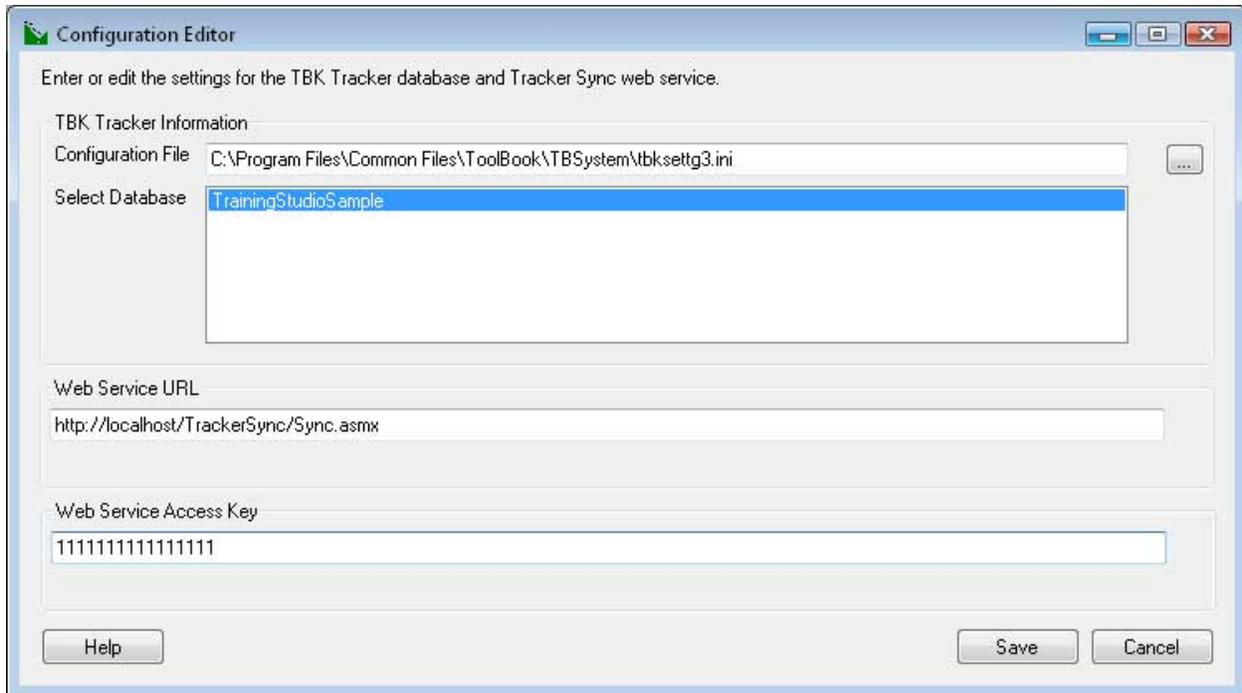
TrackerNetStudentId

This is the *StudentID* from the *Tracker_Students* table in the Tracker.Net instance with which you are synchronizing. You will need to open this table in SQL Server in order to get this value, as shown below.



Configuring the *Tracker Sync Editor* Application

The URL to the web service as well as the *TrackerNetSyncKey* is needed by users of the *Tracker Sync Editor* application in order for it to communicate with the web service and synchronize student data. The *Tracker Sync Editor* Configuration screen is shown below:



The user enters or browses to the location of the TBK Tracker configuration file (normally located in C:\Program Files\Common Files\ToolBook\TBSsystem) as well as the Web Service URL and Web Service Access Key (which must match the *TrackerNetSyncKey* defined in the *web.config* file). Once the user saves this information, it is restored each time he or she opens the *Tracker Sync Editor* application.