SQL Query Performance Tuning.

Requires SQL Management studio tools 2005/2008/2008R2

I think the following process will work on the listed versions but the specific versions used for this guide were SQL Management 2008, SQL Server 2005.

The basic process involves using the SQL Server Profiler to capture the query workload that is being executed against one or more databases. This document only goes into the details for profiling a single database. The resulting workload is then consumed by the SQL Database Engine Tuning Advisor which produces recommended changes and allows you to selectively apply them. For a database that has no extra indexes defined beyond those implied by primary keys the performance gain to query can be extreme.

1. Create a database to store the profiling results. This should be an entirely new database. Having it on the same server as the database to be profiled should be fine.
2. Launch SQL Server Profiler.
   a. Open a new trace and under “Use the template:” select ‘Tuning’
   b. Check ‘save to table’, connect to the profiling results database you created and choose an appropriate table name for the results. You will need this information later when running the analysis step.
   c. Optionally set the maximum number of trace rows to capture. It is probably a good idea to do so if you are going to run the trace unattended for an extended period of time.
   d. Switch to the events selection tab.
   e. Click column filters...
   f. Create a new filter on DatabaseName like ‘name of db to be profiled.’
   g. Click run. Try to capture as many queries as possible during a heavy workload if possible. The more data the better. The analysis tool can handle a very large set of captured query data.
   h. Stop the trace when sufficient data has been collected.
3. Launch the Database Engine Tuning Advisor from SQL Management studio’s Tools menu.
   a. A new tuning session should be open and ready to be configured. Under the workload area switch the workload radio button to “table”.
   b. Use the button to browse for the workload data table the SQL profiler trace saved to.
   c. Pick the database you intend to tune for the “Database for workload analysis” drop down list. (this is really not very critical.)
   d. Under select databases and tables to tune find the database that the profiler captured queries for and add a checkmark to potentially tune all tables.
   e. Near the top click the “start analysis” button.

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f. Once the analysis is complete you will see a list of proposed tuning options. Be sure to review the estimates disk space cost. You may selectively apply any or none of the recommendations.

g. When you have determined that there are optimizations that you wish to apply use the Actions menu and choose “apply recommendations”.

h. You might want to do a database backup to save the database changes.

4. You are done.