

A banner image for Centralpoint Performance Monitoring & Optimization. It features a man in a suit pointing his finger at a glowing blue hexagonal grid pattern. The pattern is composed of various hexagons, some of which are highlighted with a bright blue light. The background is a solid blue color.

centralpoint[®]

Performance Monitoring & Optimization

Centralpoint Health Monitor & SQL Activity Monitor

Overview

This document outlines the steps needed to optimize the performance of your Centralpoint project. This document is especially important for those clients hosting Centralpoint themselves, either On Premise, or within their own private cloud hosting service.

To properly monitor your Centralpoint project, there are two services available. The first is the Centralpoint Master Server, Health Monitor. The second is the Activity Monitoring tools available within Microsoft's SQL Server.

Leveraging both tools provides you detailed insight into the efficiency of your project code (webpages, queries, reporting, and other functions) as well as the cost or expense each may have, directly or indirectly within Microsoft SQL, the database used by Centralpoint.

Of these two tools, the first gives your perspective from Centralpoint and is called Centralpoint Health Monitor. This routine will show the order, and performance cost of each function loading within any page, within Centralpoint, indicating high-cost routines occurring within any page load. The second tool, or SQL Performance, will give your insight into the cost or expense incurred by SQL.

For an example, you may create a webpage, query or report within Centralpoint which seems to execute fine, without any slowness or degradation to your site. This feature may show no signs of degradation on screen but could indirectly cause an undue burden on the SQL database which you would be unaware of. So, to fully examine your performance, we highly recommend using both tools in unison. It is for this reason that we recommend you examine your Centralpoint Health Monitor & SQL Activity Monitor periodically to monitor and maintain the overall health, and speed of your site or project.

Outside of the periodic review, it is strongly recommended you step through this process after any change has been made to your site, such as a redesign, or moreover when new functions or features are added by either your team or by Oxcyon. Stepping back, the reason Centralpoint offers a Development, and QC (Quality Control) environment is to detect any potential issue with new code PRIOR to implementing it live (or synchronizing it) to your live production environment. Stepping through these processes are a great idea to prevent any direct or indirect impact to your Centralpoint project.

What is Centralpoint's Health Monitor?

Centralpoint's Health Monitor is found within the Centralpoint (Master) Server, specifically under the Development category (in the left-hand navigation) of Centralpoint Server. When you initially open this tool, you will see that the Configuration is Disabled, or that it is **NOT** turned on. This tool will allow you to run a report on any site within your environment (Development, Quality Control (QC) or live production site). This tool is designed to report on:

The screenshot shows the Centralpoint Master Console interface. The top header is green with the 'centralpoint Master Console' logo. The left sidebar contains navigation links: Admin, CMS, Content, Deployment, Development (with sub-links: Aliasable Terms, Errors, Health Monitor, Map Relationships, Process Log, Process Monitor, Utilities), Web Sites, Logout Oxcyon QA, Account Settings, and Site Tree. The main content area is titled 'Home > Development > Health Monitor'. It is divided into two columns. The left column, 'Configuration', contains sections for 'Health Monitor' (with 'Disable' and 'Enable' radio buttons), 'Profiler Hours' (set to 1), 'Max Number of Requests' (set to 1000), and 'Notifications' (set to 'No'). The right column, 'General Information', shows 'Health Monitor is: OFF', 'Number of Requests (Total): 0', 'Number of Requests (remaining): 0', and 'Time (remaining): 00:00'. It also includes a 'Scan websites for files over' section with a '99 KB' input and a 'Scan' button, an 'Export data from cpsys_HealthMonitor table' section with a 'Generate File' button, and a 'Check Data Sources (for xQuery)' section with a 'Scan DataSources' button. Below these columns is a 'Reports' section with a 'Filter Reports by Website' dropdown set to 'All Sites On This Server'. The bottom section, 'Server Information', displays 'Available Memory: 4.9 GB' and 'Local Disk Space' with two donut charts: 'Drive C:\' showing 15% free space (15 GB) and 85% used size (45 GB), and 'Drive D:\' showing 85% free space (85 GB) and 15% used size (415 GB).

Server Information, Memory and Disk Space

Top 100 Longest (running) requests

Top 10 Frequently Accessed URLs

Potential Problematic Requests

Top Requests Per Website

Top 10 Requests which Started but not Stopped (suggesting calls not be properly closed)

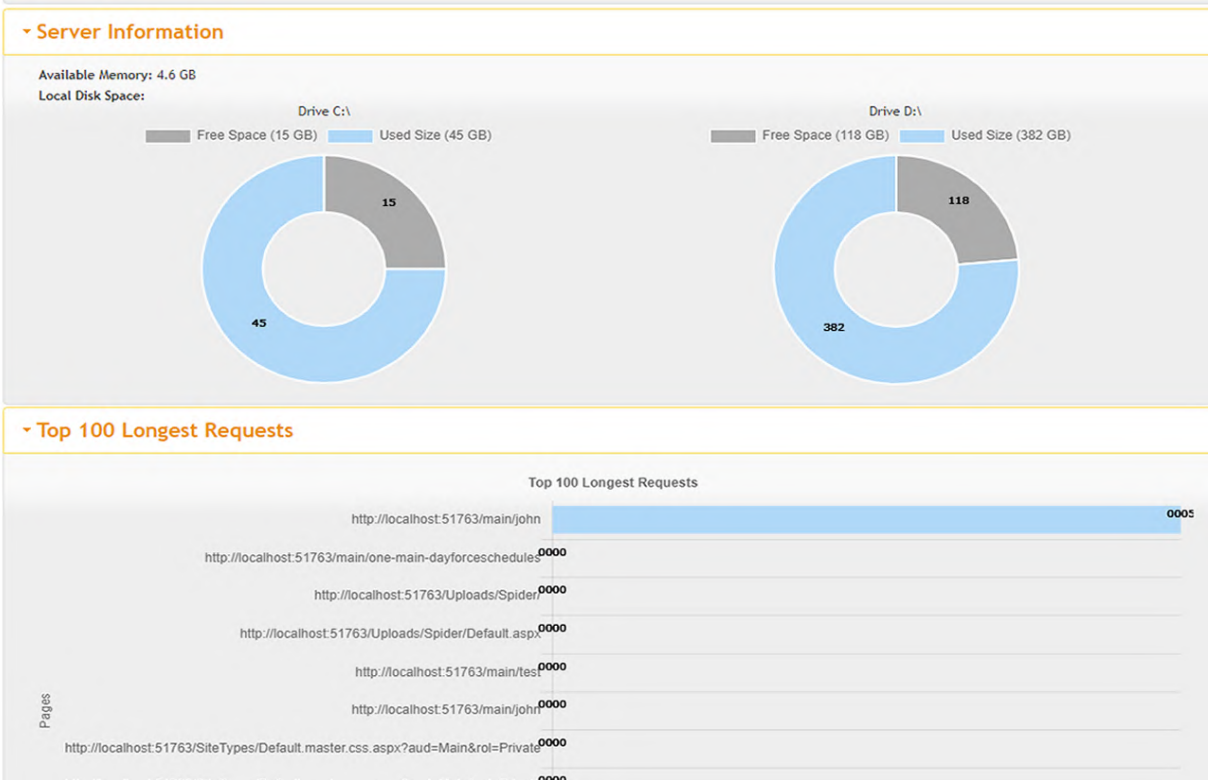
Top 100 Returned Errors

Last 10 Process Log Processes

SQL Server Backups (Indicating cumbersome backups vs. peak times)

IMPORTANT: We recommend you run the monitor during Peak Hours. This will allow the best simulation of your site, during a time period in which all users are online, clicking many different features. This will give you the most realistic capture of what your users are doing. Because Health Monitor is trapping ALL activity during the period it is instructed to run, it will place a burden on your site, as it is 'listening' to all user activity already happening on your site. If you are concerned about any slowness to your users, then you may NOT want to run this tool primetime. In this scenario, you will instead run it after hours, but the activity to the site you will want to track, will have to be created by you or test users. Example: if you were to only be testing new functions added to the site, it would then be turned on (after peak hours), where you and your test case team would then click on and use the new function within the site being monitored. When you are done, you would disable the monitor, and then analyze all results from the online site activity. So, you will need to determine the cost of performance vs. the impact to your users first to determine how you wish to trap site activity (Actual vs. Simulated).

- Step One-** Select the site you wish to monitor from the 'Filter Reports by Websites' found under Reports.
- Step Two-** Select whether you would like to run this monitor for a specified period of time, or within a maximum number of requests (or clicks to your site). You can also select whether you would like to be notified (via email) after the report is done running.
- Step Three-** Select either the time period or number of requests
- Step Four –** Select ENABLE, and then click on SAVE CONFIGURATION. Once you do, Health Monitor will begin running for your selected site, to trap and report on all activity.
- Step Five –** After your simulated site activity (you or your test users accessing the pages in question, or once you have collected enough activity, Select DISABLE, to ensure the Health Monitor stop running
- Step Six –** Analyze findings of Health Monitor Report.

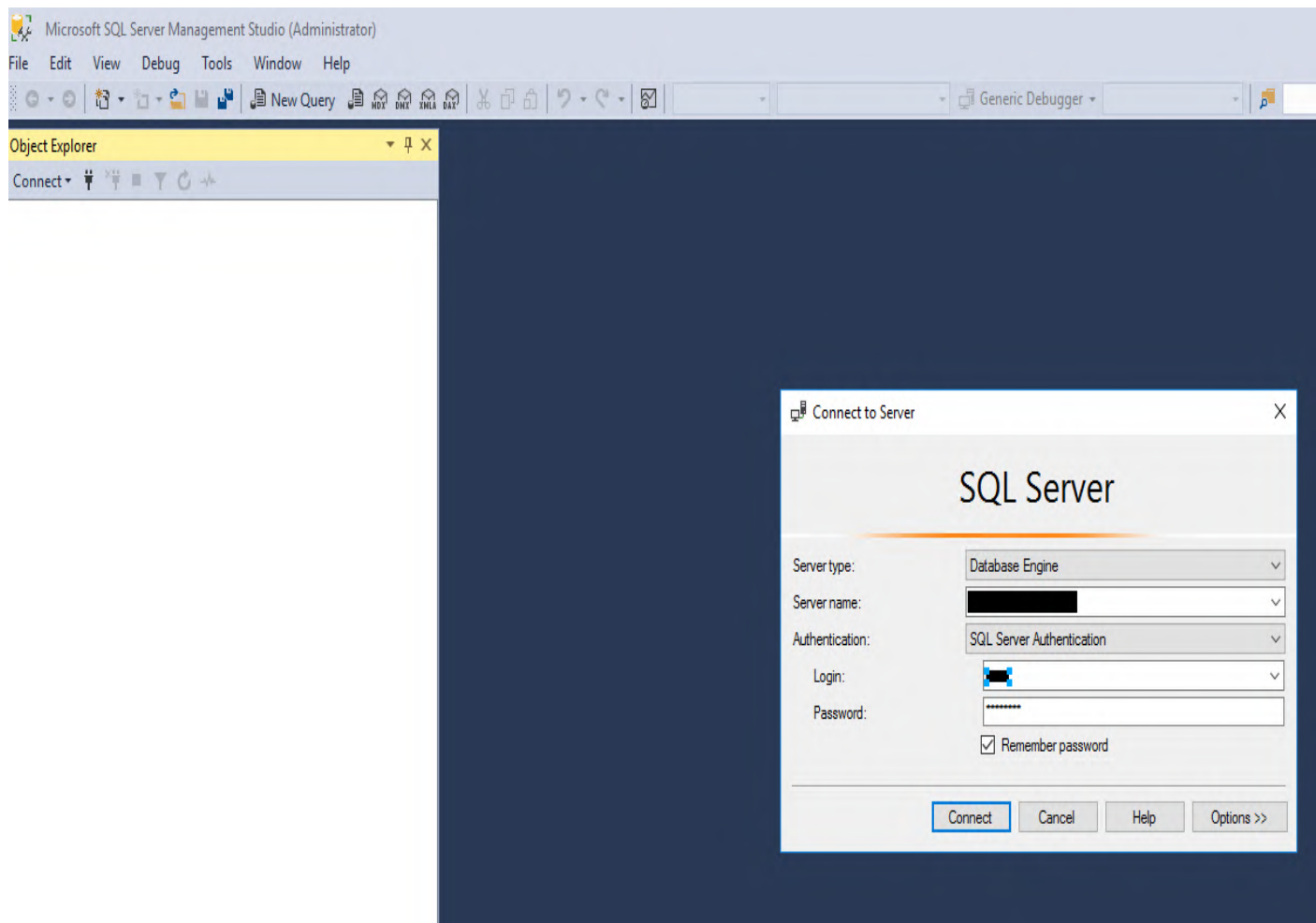


What is SQL Server Activity Monitor?

Activity Monitor displays information about current SQL Server processes and how these processes affect the current instance of SQL Server. Activity Monitor is mainly for monitoring of SQL Server with respect to databases and their queries and other measures to help understand what is impacting SQL Server at the current time. This can help you troubleshoot issues as well as see how SQL Server is using server resources.

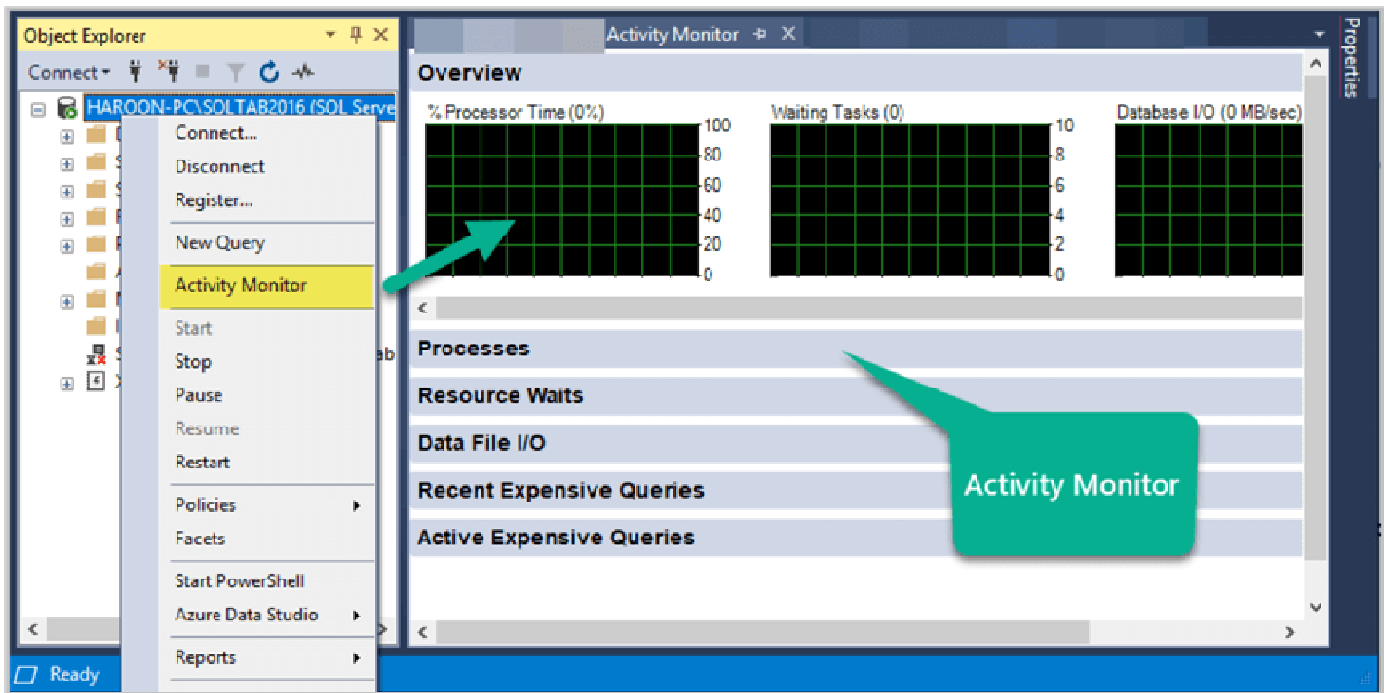
SQL Server Activity Monitor is a feature in SQL Server Management Studio that displays information about the SQL Server processes and their effect on SQL Server performance. Below are the steps to access SQL Activity Monitor and report on the processes of Centralpoint.

Step 1 - Login to SQL Server Management Studio



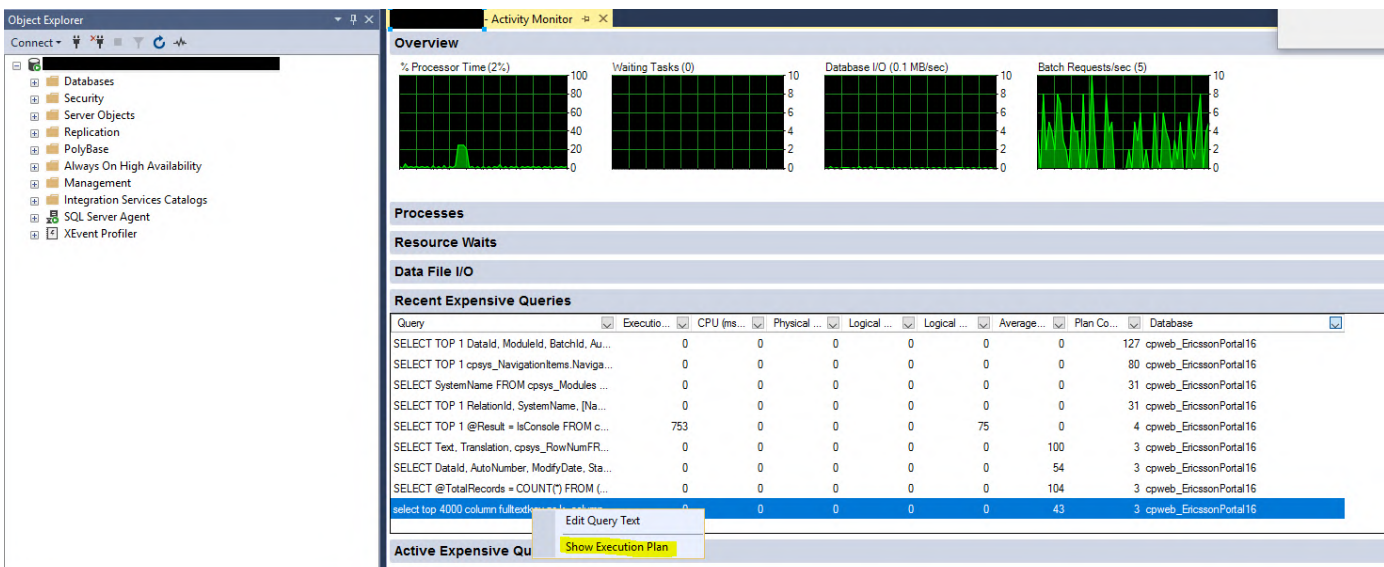
Step 2 – Open Activity Monitor

To open **Activity Monitor** right click on the SQL Server instance name and click **Activity Monitor**. As you can see below, there are several types of information you can review such as processes, resource waits, expensive queries, etc.



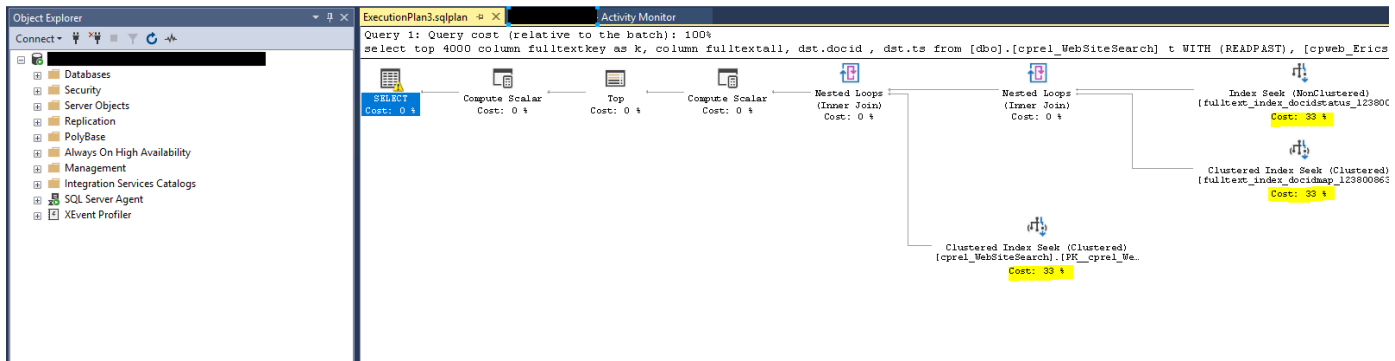
Step 3 – Click on The Recent Expensive Queries

Click on '**Recent Expensive Queries**' to expand the view and to view '**Show Execution Plan**'.



Step 4 - Show Execution Plan

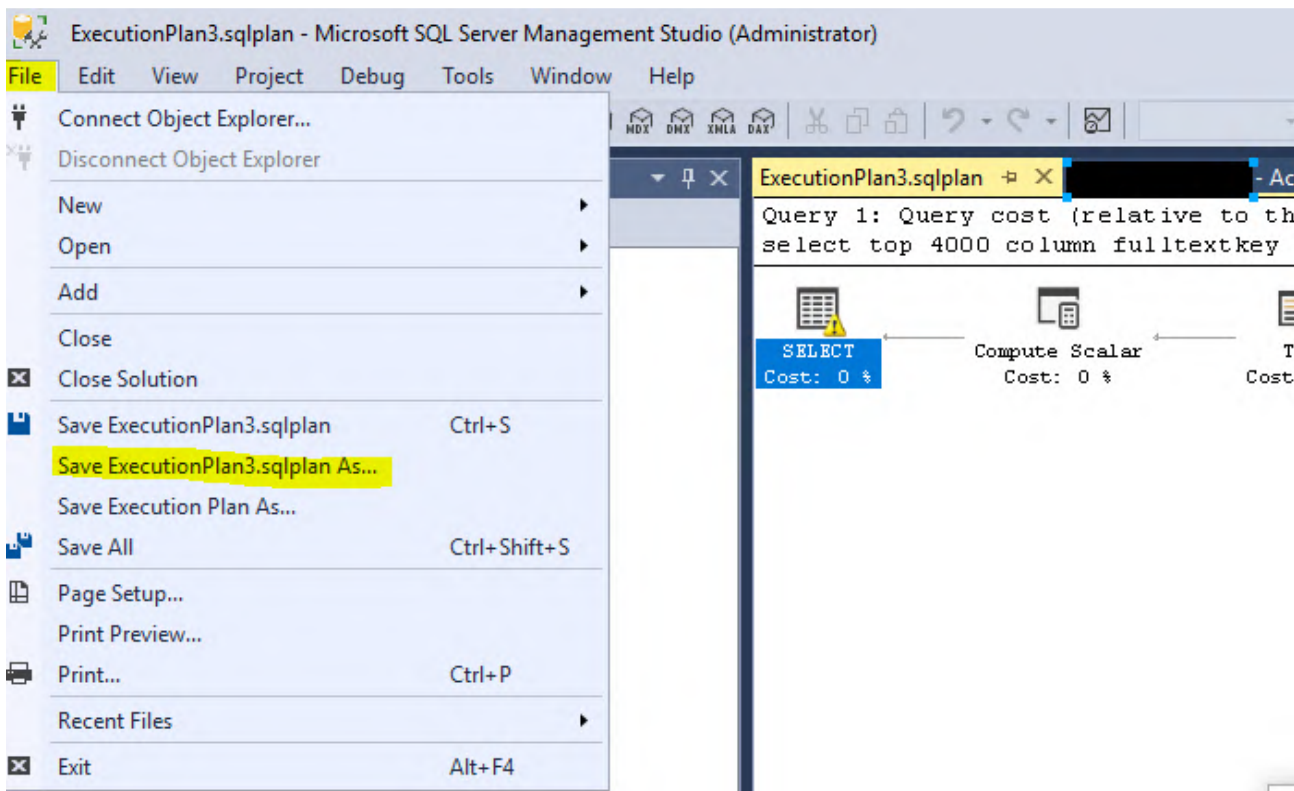
This will show the Query along with the **Cost: %**



Step 5- Save Execution Plan Processes

Click '**File > Save ExecutionPlan3.sqlplan As...**

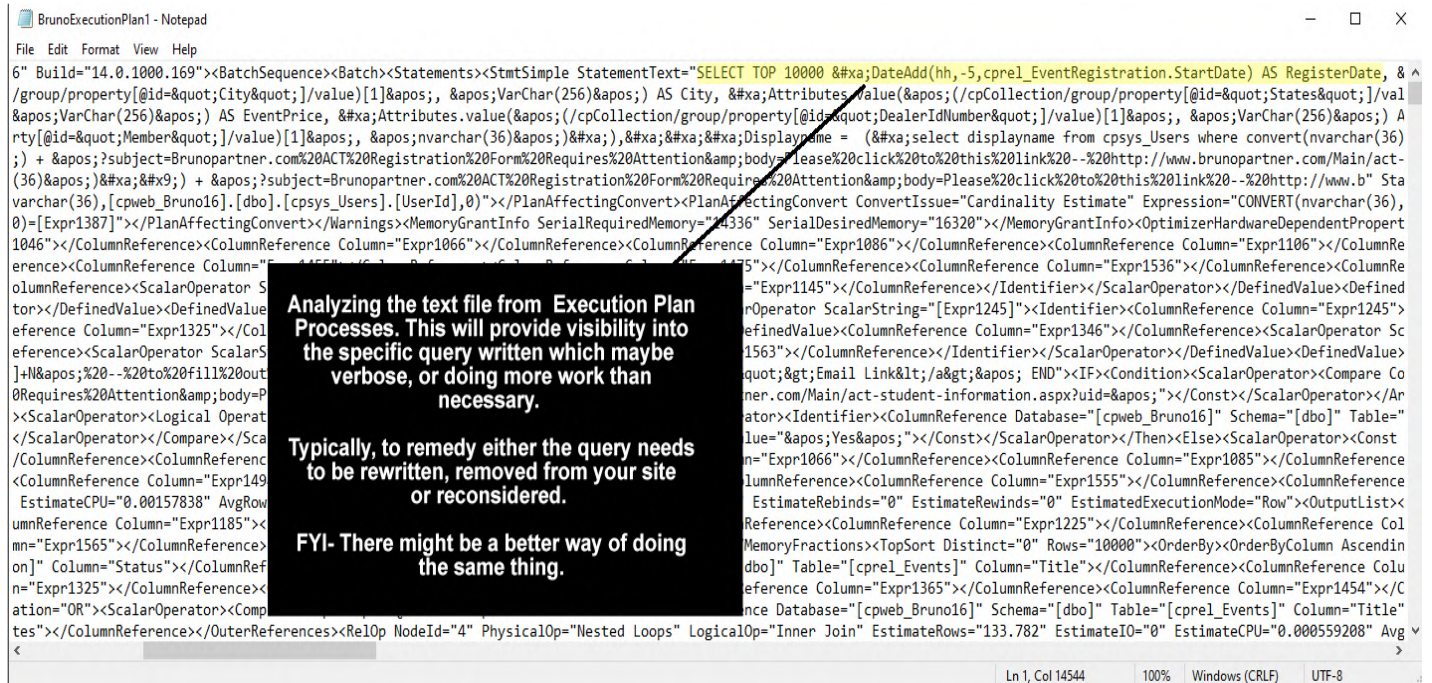
This will save files from each of the execution processes. Within these text files will show you specific queries, which will contain direction (or clues) to determine which call within your Centralpoint project are expensive, or placing any burden on SQL, including the percentage of that burden.



Step 6- Analyzing each Query or Index.

Click 'Open > Individual Text Files Saved from ExecutionPlan.

This will save files from each of the execution processes. Within these text files will show you specific queries, which will contain direction (or clues) to determine which call within your Centralpoint project are expensive, or placing any burden on SQL, including the percentage of that burden.



Analyzing the text file from Execution Plan Processes. This will provide visibility into the specific query written which maybe verbose, or doing more work than necessary.

Typically, to remedy either the query needs to be rewritten, removed from your site or reconsidered.

FYI- There might be a better way of doing the same thing.

Step 7- Rethinking the Problematic Query.

It is time to rethink this specific query. Perhaps it is outdated is no longer needed and can be removed. It is possible the query written was verbose, and is searching too many records, and could be reduced trimming only some records, or reducing the span being searched. It might also be possible to achieve this function via an alternative approach altogether. At this stage, you may want to contact Oxcyon, so that we can collaborate with you on a more efficient way to make this call or function more efficient, whether we do it for you, or advise you on alternative methods. Some common recommendations we will make when problematic queries are identified are (but not limited to):

1. Re-defining business requirements...
2. SELECT fields instead of using SELECT *
3. Avoid SELECT DISTINCT.
4. Create joins with INNER JOIN (not WHERE) ...
5. Use WHERE instead of HAVING to define filters. ...
6. Use wildcards at the end of a phrase only.
7. Use EXISTS instead of IN to check existence of data.
8. Choose appropriate Data Type.
9. Avoid NULL in fixed length field.
10. Avoid Coding Loops

Summary

SQL statements are the primary means through which Centralpoint retrieves information from its database. Even though Centralpoint CPScripts may be used, they are in turn still leveraging a query against Centralpoint's database in SQL. These statements whether written by your staff, or generated via wizards to yield a CPScript, aren't always as efficiently composed as they could be, which can lead to slowdowns from the server, and hence to your users on your site. This why keeping an eye on your project, and the changes which are implemented periodically are a good idea. It's a necessary process if you hope to ensure high levels of server performance.

Part of the process of Centralpoint optimization and tuning involves regular calibrations of the SQL queries found within. Different SQL queries can be used to retrieve the same information, but not all queries are efficient—so it's important to ensure you're using the right queries to optimize how data is drawn from SQL databases and servers.

If you discover certain queries or routines which you may not fully understand or need assistance on, be sure to attach your report, along with specific notes, in [Oxcyon's Issue Management system](#), so that our team can analyze them and give you our feedback and the options available in which to optimize.



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