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of SQL Server Professionals*

How to Analyze Performance Monitor Data Using PAL

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My Assumptions About You

- You may be a DBA Administrator or DBA Developer.
- You may be a part-time or full-time DBA.
- You probably have more than one year's experience working with SQL Server.
- You have experience using Performance Monitor (Perfmon) and are familiar with common Perfmon counters.

What We are Going to Learn Today

- What is PAL & What Does It Do
- Pros and Cons of Using PAL
- How to Install PAL
- How to Collect a Proper Perfmon Log File
- Using PAL to Analyze Perfmon Data
- How to Read PAL Reports
- How to Modify PAL for Your Own Needs
- Let PAL Create Your Data Collector Set

What is PAL

- PAL 2.0 is a free tool from Microsoft that can be downloaded from pal.codeplex.com.
- PAL is designed to consume a Perfmon log, which then summarizes and analyzes the log data.
- The result is a HTML report that summarizes Perfmon log counters, and flags conditions where potential bottlenecks may exist.
- In essence, the goal of PAL is to makes it easier for you to analyze large amounts of Perfmon data quickly and easily.

Benefits of Using PAL

- Helps you determine the proper counters to use.
- Helps you to determine the proper counter thresholds to use to determine if there is a problem. Threshold data is provided by the Microsoft Product Support team, among others.
- Besides analyzing standard counters, it also creates and analyzes derived counters.
- PAL can be used as a learning tool, finding out what Microsoft recommends for specific counter thresholds.
- PAL can be modified to suit many of your needs, should you not like the provided counters and thresholds.

Disadvantages of Using PAL

- PAL is not a total solution, but just another useful tool in the DBA toolbox that can make your job easier.
- Like most DBA tools, the data it provides is only useful if you have a good understanding of how SQL Server works. While it provides you the data, you still have to figure out what to do with it.
- The analysis is not particularly fine-grained, which means some detail is lost, which could prevent you from identifying some types of underlying problems.

How to Install PAL

- Select a non-production computer (a desktop or laptop is fine) to install and run the software. While data is collected from a production server, PAL should never run on a production server.
- If necessary, download and install the free prerequisite software.
 - PowerShell v2.0 or greater.
 - Microsoft .NET Framework 3.5 Service Pack 1
 - Microsoft Chart Controls for Microsoft .NET Framework 3.5
- Download and install PAL from: <http://pal.codeplex.com>
- Quick PAL Overview

How to Collect a Perfmon Log File

- Because PAL uses Perfmon logs for analysis, the quality of the analysis that PAL performs is based on the quality of the data collected. To collect good data:
 - Collect data during typical workloads for baseline workloads, or problem workloads to resolve specific problems.
 - Be sure to include all the counters needed by PAL (more on this later)
 - Keep collection times reasonable (how long Perfmon is run)
 - Collect data points at least once every 15 seconds
 - Collect the Perfmon log remotely and store to disk, not to a database
 - Store the log in the default .blg format (.csv is also OK)
- Demo

Using PAL to Analyze Perfmon Data

- Select the Performance Monitor log to analyze
- Restrict time range if desired
- Select threshold file (SQL Server 2005/2008)
- Answer variable questions
- Select analysis interval
- Select report output folder and format
- Execute analysis
- Demo

How to Read PAL Reports

- HTML report includes these parts:
 - Summary, so you can quickly identify any alerts
 - Tool parameters you entered before analysis
 - Alerts listed in chronological order (for time analysis)
 - Counter trend analysis listed by counter type (and with accompanying alerts)
- Demo

How to Modify PAL for Your Own Needs

- If you like, you can add or remove counters from any PAL template.
- You can also create derived counters based on the available data already collected, or by adding your own questions (which are used for your custom analysis).
- In addition, you can modify the thresholds used to determine alerts.
- Demo

Let PAL Create Your Data Collector Set

- PAL can export Perfmon Template Files that can be used to create Perfmon Data Collector Sets.
- This way, your Perfmon Data Collector Sets will include all the necessary data for PAL to perform its analysis.
- This is a lot faster than creating Perfmon Data Collector Sets manually.
- Demo

Takes Homes for Today

- PAL can be a very useful tool, assuming that it is used for its intended purpose, and you *understand how to apply the feedback* you have received from it.
- Be sure the Perfmon data you are analyzing is *representative* of a typical/problem workload.
- Be sure to *run PAL on a non-production* box.
- If you haven't tried PAL for analyzing your Perfmon logs, then *give it a try*. You may have to experiment some to find the ideal configuration for you.

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