

Exchange 2003 – Performance Troubleshooting Analyzer Tool v1.0 (ExPTA)

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Abstract

In this article I will show you how to use the new Exchange Server 2003 Performance Troubleshooting Analyzer Tool (ExPTA).

Let's begin

The Exchange Server Performance Troubleshooting Analyzer v 1.0 collects Exchange configuration data, several performance counters some other information from an Exchange server. ExPTA analyzes each Exchange and Server subsystem to determine bottlenecks, then aggregates this information to provide helpful information about these bottlenecks and shows some solutions to improve performance.

ExPTA requirements

Component	Requirement
Operating system	Microsoft Windows 2000 Professional, Windows XP, Windows 2000 Server family, or Windows Server 2003 family required; Windows XP recommended
Computer and processor	Personal computer with 133-megahertz (MHz) or higher processor; 1.0-gigahertz (GHz) or higher processor recommended. Dual processors for topologies with more than 100 Exchange servers are recommended
Memory	256 megabytes (MB) of RAM required; 256 megabytes (MB) for every 50 Exchange servers in the topology recommended
Hard disk	10 MB of available hard disk space for tool installation; 2 MB of free space per server, per scan required for the data output
Display	VGA or higher-resolution monitor
Input device	Mouse or compatible input device
Messaging system	Mixed-mode or native-mode Exchange Server 2003, Exchange 2000 Server, and Exchange Server 5.5 system; Exchange Server 2003 recommended. Note: Pure Exchange Server 5.5 topologies are not supported
Dependencies	Microsoft .NET Framework 1.1 IIS Common Files

Download and installation

You can download ExPTA from [here](#). After downloading you must install the package. Installation is easy. Simply follow the installation instructions.

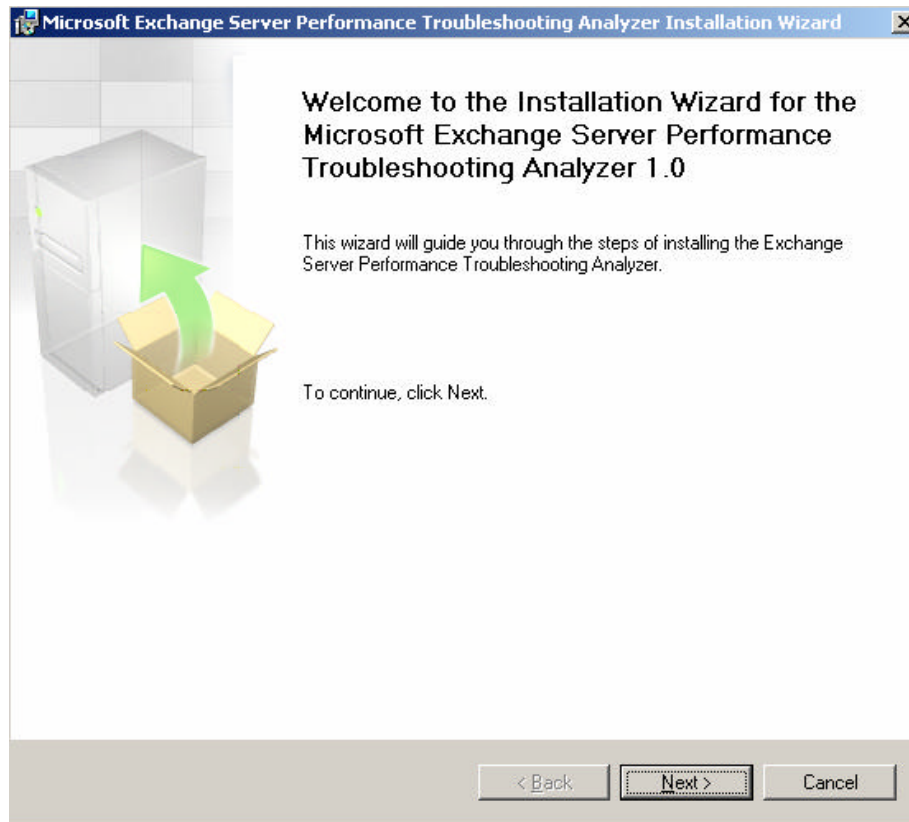


Figure 1: ExPTA Installation

Using ExPTA

After starting the Exchange Server Performance Troubleshooting Analyzer it is looking for updates on the Microsoft Exchange Website. If a new configuration file has been found you can select *Download the latest version* or *Continue without making any updates*. If you want to let ExPTA check for updates at every startup, select *Check for updates on startup*.

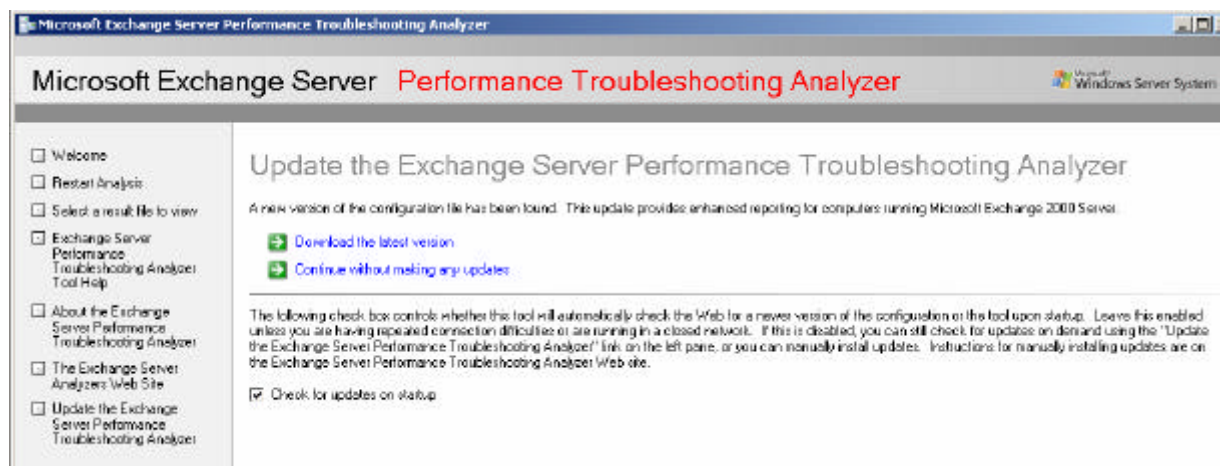


Figure 2: ExPTA Update Check

Please note that ExPTA is version 1.0 and I think that the Exchange team will be expanding the number of symptoms over the time. You can select:

- The number of RPC operations per second is higher than expected
- Multiple users are complaining of delays while using Outlook, ore are seeing the Outlook Cancellable RPC dialog frequently.

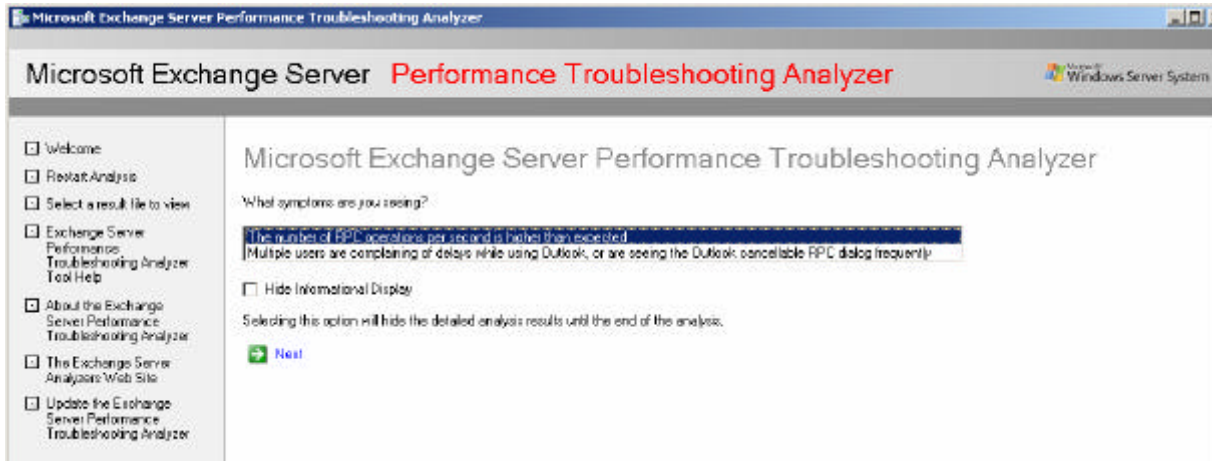


Figure 3: ExPTA select Symptoms

Before you can use ExPTA to analyze the RPC Activity you must collect RPC data with the Microsoft Tool Exmon. You can read more about Exmon [here](#).

Name	Size	Type	Date Modified	Attributes
Exmon.exe	66 KB	Application	3/31/2005 12:40 AM	A
exmon.reg	1 KB	Registration Entries	3/30/2005 11:15 PM	A
guid.txt	1 KB	Text Document	3/30/2005 11:15 PM	A
Using_Exmon.doc	176 KB	Wordpad Document	3/30/2005 11:14 PM	A
LONDON-4373c39d.etl	256 KB	ETL File	11/10/2005 11:04 PM	A
LONDON-4373c3da.etl	248 KB	ETL File	11/10/2005 11:04 PM	A

Figure 4: ExMon Trace files

ExPTA analyzes the Exmon RPC trace. You must select *Collect Exchange Server User Monitor (ExMon) trace data for me*.

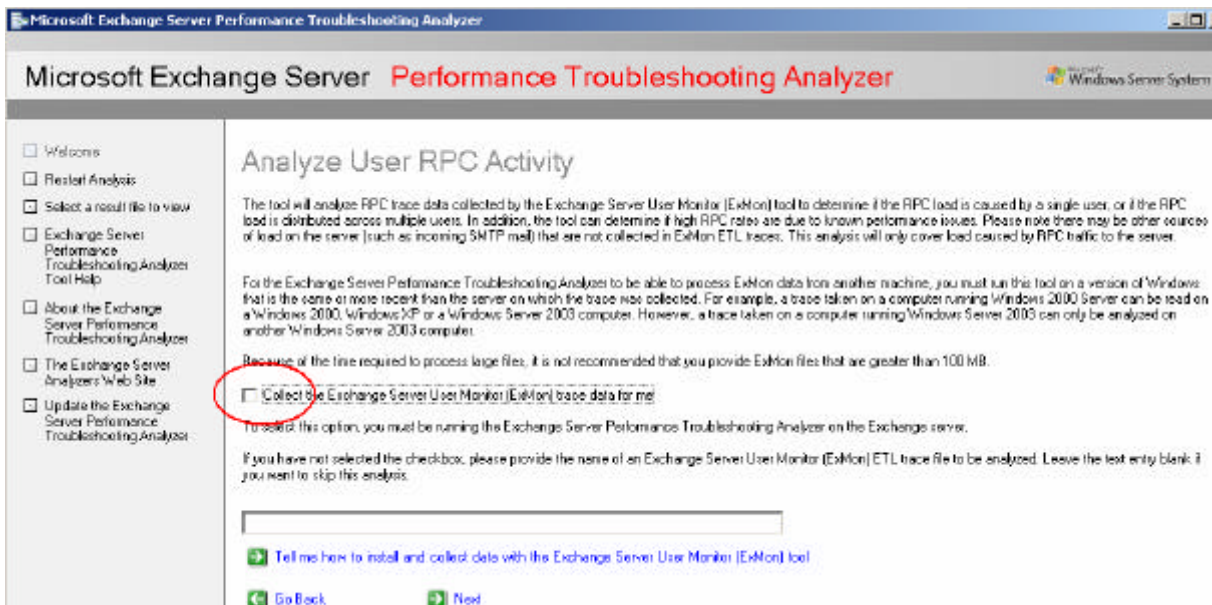


Figure 5: ExPTA – Selcet RPC Trace from Exmon

After Exmon has collected RPC information, ExPTA shows the Exchange Server Performance Troubleshooting Analyzer results.

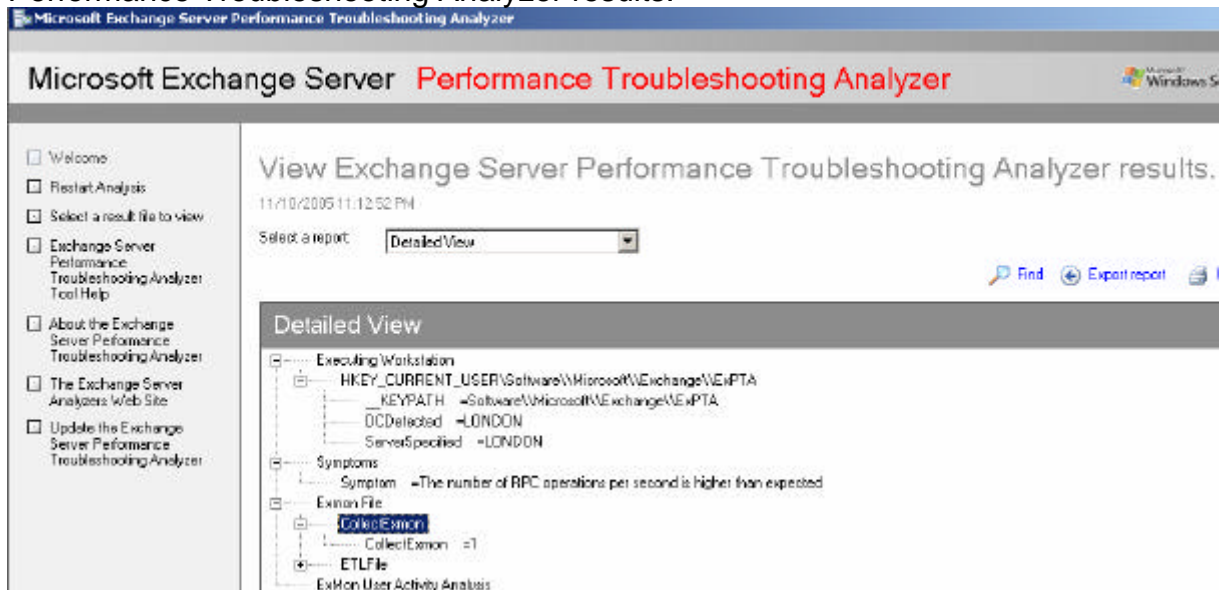


Figure 6: ExPTA select Symptoms

After reading the ExPTA information, you can start ExPTA to start a new Analysis for the second symptom that users are complaining of delays while using Outlook.

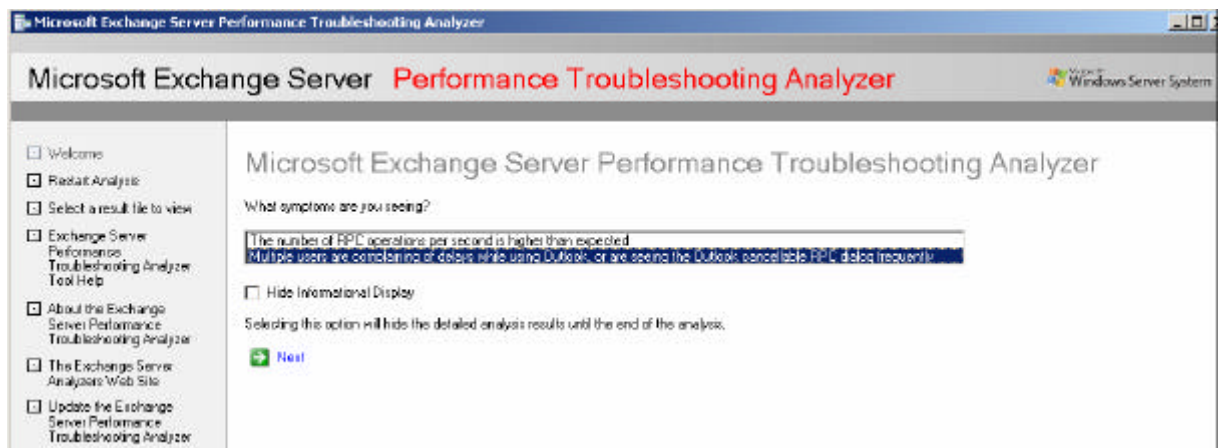


Figure 7: Select another symptom

Now we must select the name of the Exchange and Global Catalog Server.

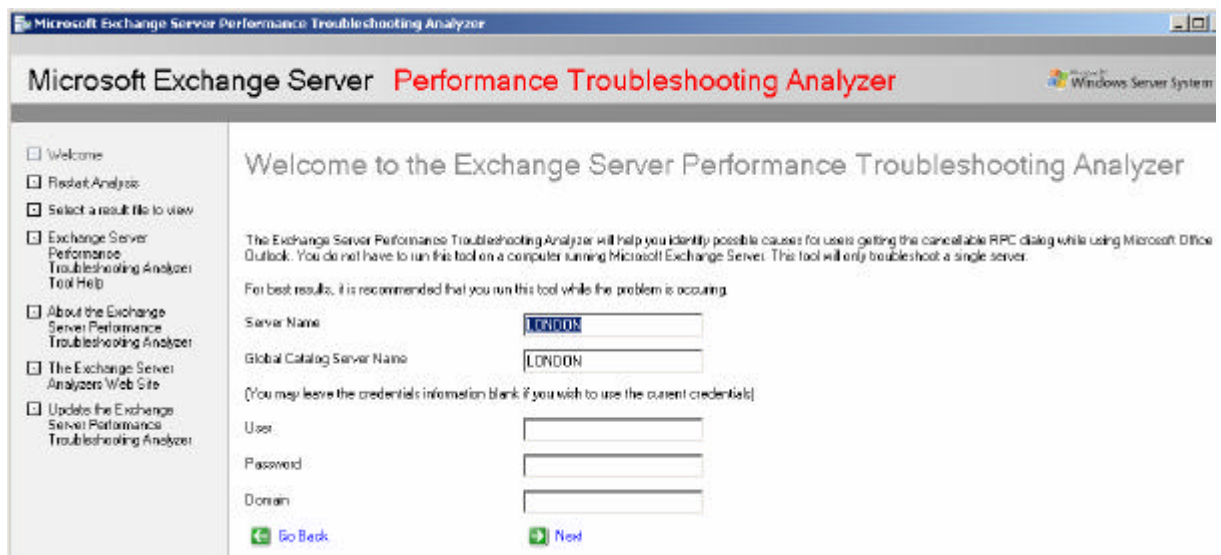


Figure 8: Specify the Exchange and Global Catalog Server name

After some processing, ExPTA shows the results of the Connectivity test and will now check the RPC performance counters on the Exchange Server and the memory and processor counters for bottlenecks.

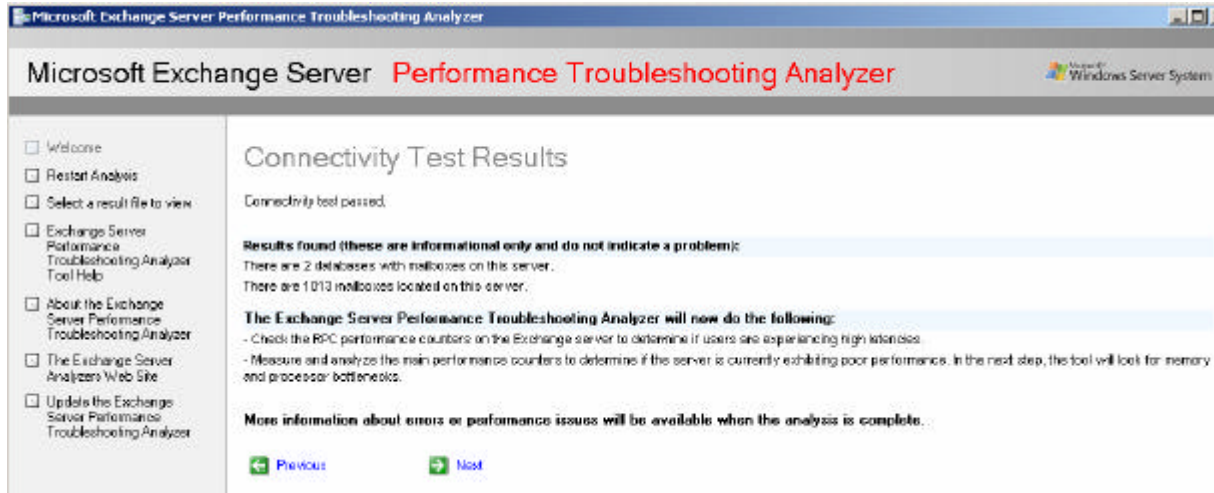


Figure 9: ExPTA scans the Server for the number of Mailboxes.

ExPTA has no problems found with RPC latencies but will continue to investigate the configuration of the server.

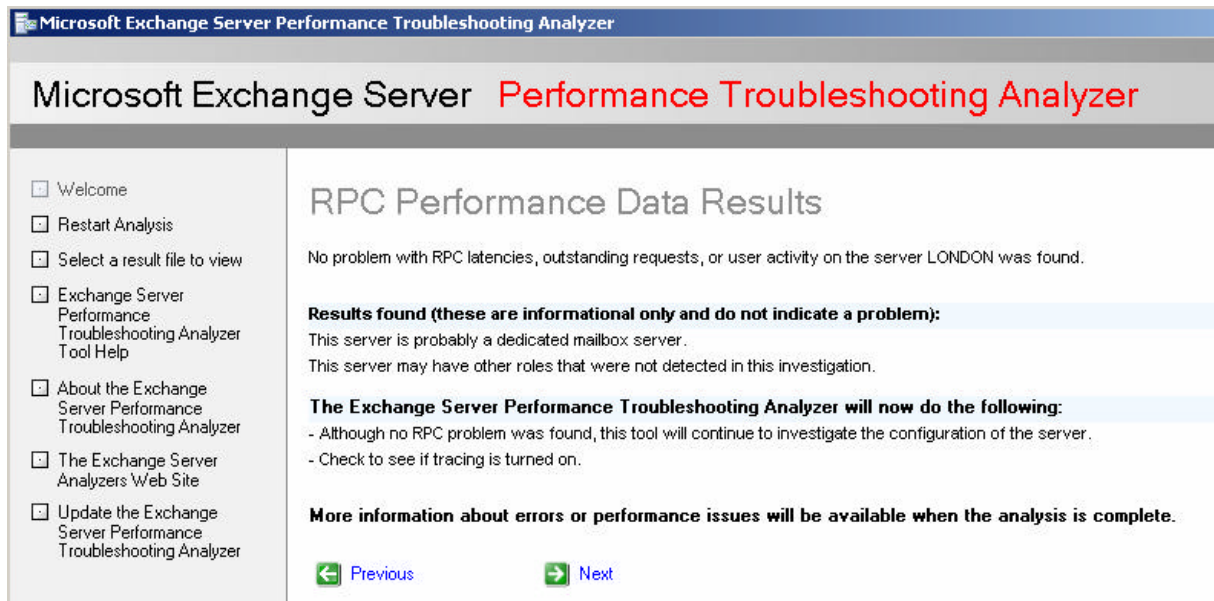


Figure 10: ExPTA RPC Performance Data Results

Click Next. ExPTA has found the following logical disks A/C/D/E/Z and will now examine the performance of the disk subsystem.

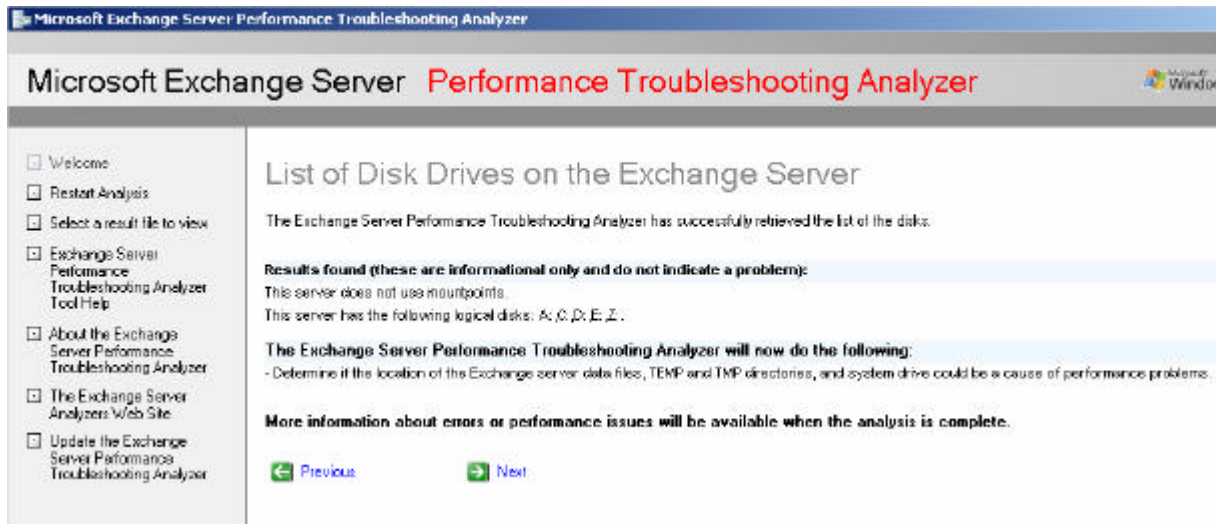


Figure 11: ExPTA lists the logical disks and will do additional processing

Ups. This not an Exchange machine in a production environment (it is a virtual machine), so it is not a problem that there are some red lines in the analysis results that states that there are potential performance issues.

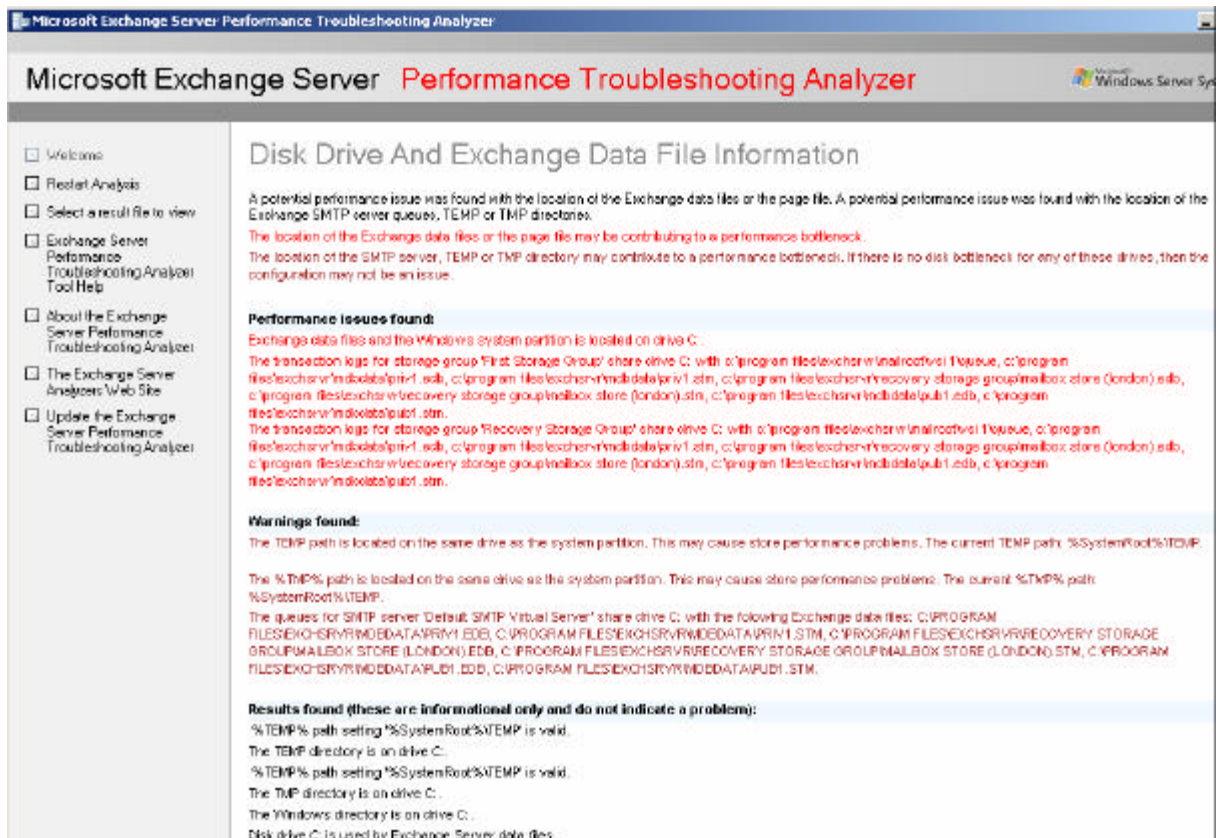


Figure 12: ExPTA has found some potential performance issues

ExPTA has found that the disk subsystems is a potential performance bottleneck and displays some counter results.

Microsoft Exchange Server Performance Troubleshooting Analyzer

Microsoft Exchange Server Performance Troubleshooting Analyzer

- Welcome
- Restart Analysis
- Select a result file to view
- Exchange Server Performance Troubleshooting Analyzer Tool Help
- About the Exchange Server Performance Troubleshooting Analyzer
- The Exchange Server Analyzers Web Site
- Update the Exchange Server Performance Troubleshooting Analyzer

Disk Drive Performance Counter Information

A potential performance issue was observed from the disk performance counters. One or more disks is exhibiting a performance bottleneck.
The page file disk %PAGEDrive%, which contains the page file, has a performance bottleneck.
A potential performance issue was observed from the disk performance counters. One or more disks is exhibiting a performance bottleneck.

Performance issues found:
 Page file drive %PAGEDrive% : LogicalDisk\Average Disk seconds per Read should be less than 10 ms. The measured value is NaN ms.
 Page file drive %PAGEDrive% : LogicalDisk\Average Disk seconds per Write should be less than 10 ms. The measured value is NaN ms.

Results found (these are informational only and do not indicate a problem):
 Database drive C: : LogicalDisk\Average Disk seconds per Write = 0.005 seconds.
 Database drive C: : The maximum LogicalDisk\Average Disk seconds per Write value measured was 0.02 seconds.
 Database drive C: : LogicalDisk\Average Disk Queue Length = 0.04.
 Database drive C: : LogicalDisk\Average Disk seconds per Write = 7.
 Database drive C: : Drive C: : Ratio of Reads/Writes = 0.
 Transaction log disk C: : LogicalDisk\Average Disk Seconds per Write = 5 ms.
 Transaction log disk C: : LogicalDisk\Average Disk Seconds per Write spikes = 10 ms.
 Transaction log disk C: : LogicalDisk\Average Disk Writes per second = 5.
 Transaction log disk C: : Ratio of Reads/Writes = 0.
 %TMP% drive C: : LogicalDisk\Average Disk msec/Read = 0 ms.
 %TMP% drive C: : LogicalDisk\Average Disk msec/Read spikes = 1.
 %TMP% drive C: : LogicalDisk\Average Disk seconds per Write = 0.
 %TMP% drive C: : LogicalDisk\Average Disk seconds per Write spikes = 0.
 %TEMP% drive C: : LogicalDisk\Average Disk seconds per Write = 0.
 %TEMP% drive C: : LogicalDisk\Average Disk seconds per Write spikes = 0.
 SMTP Disk C: : LogicalDisk\Average Disk Seconds per Write = 4 ms.
 SMTP Disk C: : Maximum LogicalDisk\Average Disk Seconds per Write = 8 ms.
 Missing performance data for NaN, Avg. Disk Sec/Read.
 The paging file on disk %PAGEDrive% shows Paging File Percent Usage is 6%.

More information about errors or performance issues will be available when the analysis is complete.

Figure 13: ExPTA disk analysis and results

Click Next to see more information about RegTrace Checks

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RegTrace Check

No issue with tracing was identified.

More information about errors or performance issues will be available when the analysis is complete.

[← Previous](#) [Next →](#)

Figure 14: Click next for more information about RegTrace Check

ExPTA has found that the processor and memory is a bottleneck for Exchange.
 ExPTA has found that the Exchange Server is running on a virtual machine, which is currently not supported.

Please note: Support for Exchange Server 2003 in Virtual machines begins with Exchange Server 2003 SP2 and Virtual Server 2005 R2.

The screenshot displays the 'Memory and Processor Counter Results' section of the Microsoft Exchange Server Performance Troubleshooting Analyzer. The interface includes a navigation pane on the left with options like 'Welcome', 'Restart Analysis', and 'Select a result file to view'. The main content area shows a summary of performance issues found on server LONDON, which is a virtual machine. Key findings include a processor bottleneck (System Processor Queue Length at 2.5) and a memory bottleneck (Memory Available MBytes at 50). A detailed list of results follows, including server manufacturer (Microsoft Corporation), processor speed (2810), and various memory usage statistics for different processes and system components.

Figure 15: ExPTA has found Processor and Memory bottlenecks

The next page shows the Summary of Performance Analysis and the server state is critical. The Server has several performance bottlenecks like CPU, Memory, disk subsystem, Pagefile and more.

The screenshot displays the 'Summary of Performance Analysis' section of the Microsoft Exchange Server Performance Troubleshooting Analyzer. The navigation pane on the left remains the same. The main content area provides an overview of the Exchange server state, highlighting several performance bottlenecks: disk I/O on the %PAGEDrive% (C:\pagefile.sys), a processor bottleneck, and a memory bottleneck. It also lists all performance issues found, such as Exchange data files and Windows system partition on drive C:, and provides warnings about the location of the %TMP% and %TEMP% paths relative to the system partition. The summary concludes with a list of Exchange data files and their locations on the server.

Figure 16: ExPTA summary of Performance Analysis

ExPTA has found 14 critical issues and you can expand every Issue and click *Tell me more about this issue and how to resolve it*.

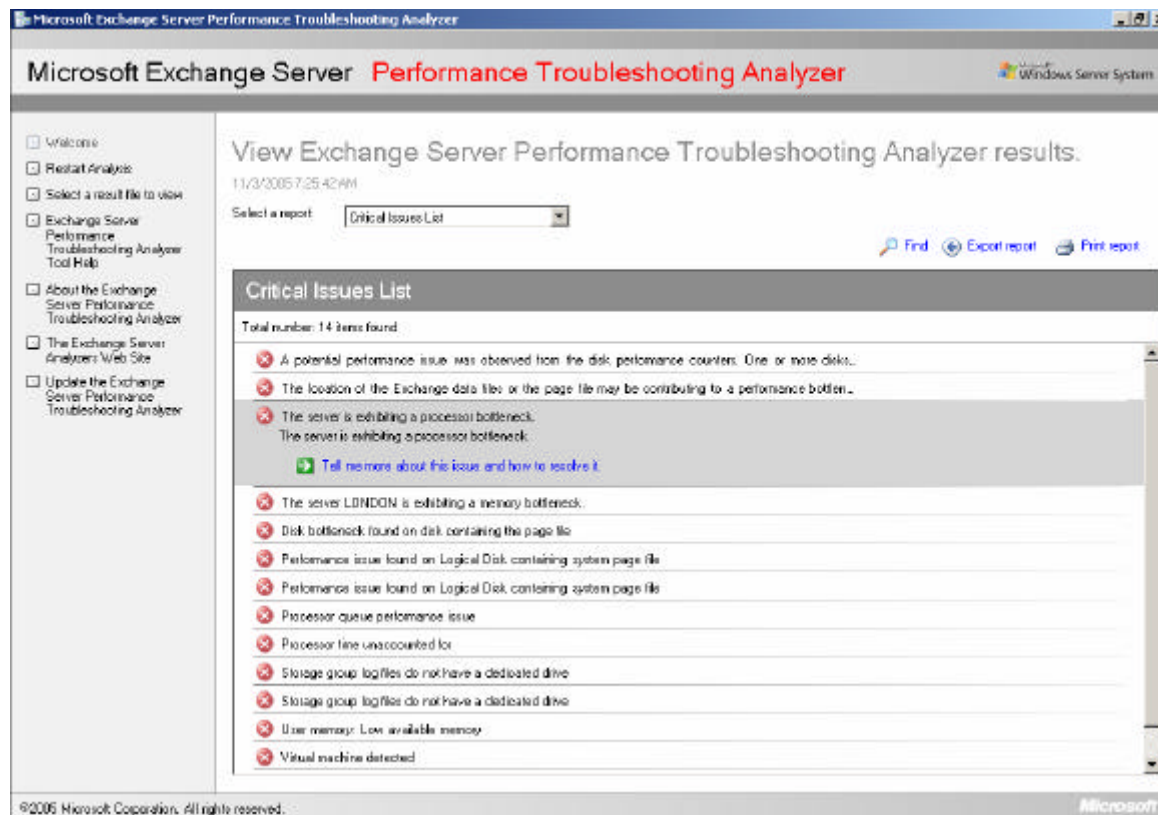


Figure 17: ExPTA reports

Conclusion

Before ExPTA it was hard for several Exchange Administrators to find the performance bottlenecks of their Exchange Server systems. Now it is much easier to find the performance bottlenecks and ExPTA will show you how to eliminate these bottlenecks and how to improve performance.

Related Links

Microsoft Exchange Server Performance Troubleshooting Analyzer Tool v1.0

<http://www.microsoft.com/downloads/details.aspx?familyid=4BDC1D6B-DE34-4F1C-AEBA-FED1256CAF9A&displaylang=en>

Microsoft Exchange Server Disaster Recovery Analyzer Tool v1.0

<http://www.microsoft.com/downloads/details.aspx?familyid=C86FA454-416C-4751-BD0E-5D945B8C107B&displaylang=en>

System Requirements for Microsoft Exchange Server Analyzer Tools

<http://www.microsoft.com/technet/prodtechnol/exchange/downloads/2003/analyzers/sysreqs.mspx>