Optimize Your Deployment Using Best Practices

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What is GP SQL Server Optimization?

- Independent review of your SQL configuration
- Verification that your system is setup to meet Microsoft best practices for a GP deployment
- Analysis of how the server is performing during regular business hours
- Regular scheduled maintenance to verify backups, performance, and health of your server
Are you taking care of GP?

- Like any system, GP needs upkeep.
  - This includes updates
    - Hotfixes
    - Service Packs
    - Version Upgrades

- What you get from updates
  - Bug fixes
  - Tax Updates
  - Latest features
  - New functionality

- So what do you need besides GP updates?
  - To keep GP running at its best, you need to maintain it.

What options are available from The Resource Group?

- System Performance Review:
  - One time review of your GP deployment including your SQL server and client(s).

- Server Maintenance Plan
  - Regular scheduled after hours maintenance that monitors the performance of your SQL Server, and identify any potential issues that may be occurring
System Performance Review

• Review of your system that covers the following areas:
  ▪ Microsoft Dynamics GP Installation information
  ▪ SQL Server system requirements check
  ▪ SQL Server Hardware
  ▪ Operating System settings
  ▪ SQL server configuration
  ▪ General observations for settings that cause common issues in GP

System Performance Review

• Microsoft Dynamics GP Installation Information
  ▪ Gathers version, company information, modules, 3rd party’s and GP paths in your deployment

Microsoft Dynamics GP Information
  • Microsoft Dynamics GP version: 12.00.1746
  • SQL Server Instance: Server Name
  • SQL version: SQL Server 2012 11.0.2100
  • Number of companies: 5
  • Modified reports: Yes
  • Microsoft Dynamics GP Modules
    ▪ Fixed Assets
    ▪ Sales
    ▪ Purchase
    ▪ GL
    ▪ AP
    ▪ User Interface

The Resource Group
System Performance Review

- SQL Server System Requirement Check
  - Checks your SQL Server specifications against Microsoft’s minimum requirements for GP

<table>
<thead>
<tr>
<th>Microsoft Requirement</th>
<th>Current server Specification</th>
<th>Requirement Met?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows Server 2012</td>
<td>Microsoft Windows Server 2012 Standard</td>
<td>Yes</td>
</tr>
<tr>
<td>Microsoft SQL Server 2012 RTM</td>
<td>Microsoft SQL Server 2012 RTM</td>
<td>Yes</td>
</tr>
</tbody>
</table>

System Performance Review

- SQL Server Hardware
  - SQL Server hardware is checked for performance, hard disk configuration for use with your GP databases, backup plans, and configuration with your Operating System.
System Performance Review

- **SQL Server Hardware**
  - Common items that should be checked on your SQL server:
    - Processor Utilization <80%
    - RAM available > 2GB
    - TCP Chimney Disabled on NIC
    - RAID configuration for Databases
    - Disaster Recovery Plan/Backups

- **Operating System Settings**
  - Your operating system is checked for Architecture, service pack level, update settings, roles, firewall, and Antivirus to ensure they are configured using Microsoft’s recommendations for GP. A baseline performance monitor is also collected.

Operating System recommendations:
- Set your antivirus Antimal to exclude the GP folder on the client.
- http://support.microsoft.com/kb/316084, excluding All scans will improve performance on the clients. One specific process is affected by longer performance.
- http://support.microsoft.com/kb/316084, disabling unnecessary extensions. Also perform sysprep, Please see sysprep pdf.
System Optimization Review

- **Operating System Settings**
  - Operating system setting that normally affect your deployment include:
    - Architecture-x64 recommended if you have more than 4GB of RAM
    - Windows update setting-Recommended to have regular updates
    - Fire Wall-Enable SQL and MR Ports/Services
    - AntiVirus-Virus scanner settings http://support.microsoft.com/kb/898982
    - Task scheduler jobs- If performance takes a hit at the same time each day, check for scheduled jobs.

System Performance Review

- **SQL Server Configuration**
  - Gathers configuration settings for your SQL Server including; maintenance plans, version, cliconfig, services, autogrowth, parallelism, agent jobs, and Database settings.

### SQL Server Configuration Manager

- SQL Server Instance Name:
- Verify if it is clustered:
- Collation:
- SQL Version:

### SQL Server Configuration Manager

- Alias setup [CLICONFIG]:
- Named Pipes Enabled:
- TCP/IP Enabled:

SQL Server recommendations:
- I recommend you move the SQL server and the database to their own dedicated RAID array. You will want to separate the LDF and MDF into their own RAID volume to optimize read/write performance, and fault tolerance. Having the LDF on a RAID 1 or 10 volume will ensure that SQL can write to the LDF as fast as possible with no competition on the database reads.
System Performance Review

- **SQL Server Configuration**
  - SQL Server setting that affect your deployment:
    - Maintenance plans- Check for performance optimization maintenance plan.
    - Agent-Verify it is started and the PJOURNAL job has been completed
    - Arithmetic Abort-Verify if it is Disabled
    - Max Degree of Parallelism
    - CLICONFG-Verify if there is an ALIAS, TCP/IP, or Named Pipes enabled

System Performance Review

- **General Observations**
  - Common observations that do not fall into the other categories for the system review:
    - Modules in your Dynamics Database that have not been upgraded. If you ever install those modules, you may need to have those modules deleted from the databases.
    - Certain processes take a long time to run. If mentioned in the initial contact, we can focus on areas during the review that may be the cause of the issue.
    - Checks paths and report deployments.
    - Address questions specific to the customers environment.
Server Performance Review

- Documentation you will receive:
  - System Review Document
  - Supplemental Documentation:
    - Health Check document
    - Perfmon template
    - Perfmon
    - Dex.ini
    - DYNAMICS.SET
    - MSINFO32

What is Server Maintenance?

- You may already have IT taking care of the GP server.
- For example, they may perform these tasks:
  - Install Windows updates
  - Free up disk space
  - Run Anti-Virus software
  - Taking backups of the server
What is Server Maintenance?

- The performance of GP is only as good as the components that it runs on:
  - GP databases run on SQL Server
  - SQL Server runs on Windows
  - Windows runs on hardware
  - Hardware is the base

- It is vital that the hardware running GP has the performance capacity to support all of the systems above it.
  - You can’t run the system faster than the hardware can support.

What is Server Maintenance

- Overall GP performance depends on:
  - SQL Server performance
  - Windows Server performance

- The goal of maintenance is to keep these two running optimally, so GP runs well.
Why Do I Need Maintenance?

- Performing regular server maintenance accomplishes three things.
  1. Identify
     - What issues are happening right now?
     - Are there things that are degrading performance?
  2. Maintain
     - What tasks are necessary to keep the SQL Server running at an ideal level of performance?
     - What needs to be done in the short term and long term to keep the server’s hardware and software in shape?
  3. Monitor
     - Are the hardware demands of the server satisfied?
     - Is there enough server resources for future growth?

Server Maintenance

- Customized scheduled maintenance window where we can verify the following:
  - Physical Server Performance
  - Inspect SQL Backups
  - Detect Corruption in SQL databases
  - Physical File Fragmentation
  - Management of Indexes and Statistics
  - Event Log Issues
  - Data File Growth
  - Database log file growth
  - Updates
  - SQL Jobs
Server Maintenance

• Get a report emailed to you monthly that gives you a status on your server.
  - Status indicator that quickly shows if something requires your attention.

Available Updates – Status: OK

1. Server software updates were installed.

- Internet Information Services for Internet Explorer 6 for Windows Server 2008 R2 x64: 3.9MB
- Security Update for Internet Explorer 4 for Windows Server 2008 R2 x64: 3.4MB
- Security Update for Microsoft .NET Framework 2.0 for Windows Server 2008: 2.1MB
- Security Update for Windows Server 2003 R2 x64 Edition (KB2909015): 3.3MB
- Security Update for Windows Server 2008 R2 x64 Edition (KB2902279): 1.5MB
- Security Update for Windows Server 2008 R2 x64 Edition (KB2902278): 2.6MB
- Update for Windows Server 2003 R2 x64 Edition (KB2909015): 31MB
- Update for Windows Server 2003 R2 x64 Edition (KB2909016): 30MB
- Update for Windows Server 2003 R2 x64 Edition (KB2909017): 30MB
- Update for Windows Server 2003 R2 x64 Edition (KB2909012): 30MB
- Windows Malicious Software Removal Tool x64 - Msp - Sp2 (KB8989103): 24.3MB

Server Maintenance

• What Can I Expect?
  - Problems are brought to your attention.
    - A SQL job failed.
    - The databases got corrupted.
    - There are errors in the event log that need to be addressed.
    - Windows or GP updates are available.
    - The physical resources are being stressed.
      - CPU or RAM usage is too high.
      - Hard drive space is running out.
  - SQL objects are optimized both physically and logically.
    - Defragment – SQL Objects, SQL Files.
    - File allocation – SQL Files.
**Troubleshooting issues in GP**

- **First step in troubleshooting a GP issue is to answer the following:**
  - Who: Who is experiencing the issue?
    - Is it all users, or just specific users?
    - Is it with their GP credentials, or with Windows Credentials?
  - What: What are the exact steps to recreate the issue?
  - When: When is the issue occurring?
    - Is it occurring all the time, or is it intermittent?
    - Is it only happening at a specific time of day?
  - Where: Where is it happening?
    - Is it occurring on all clients, or just specific clients?
    - Is it happening on the server?

- The answers will help you determine if it is a credential, server, or client issue.

- **Common tools used to troubleshoot GP:**
  - SQL Server Profile Trace
  - Performance Monitor
  - Process Monitor
  - Microsoft Message Analyzer
  - Event Viewer
  - DEXSQL.Log
  - Test.udl
Troubleshooting issues in GP

• If the client cannot connect to SQL
  
  ▪ If having problems connecting to the server inside of GP, try connecting outside of GP on the client to see if you can connect to the server at all.
  
  ▪ Common ways to test the connection:
    • Ping the GP server from the client.
    • Run a test in the ODBC.
    • Create a test.udl file to test the connection.
    • Try to access shares on the server via UNC path

• If you are having issues with DNS resolution, packet loss, or routing tables, here are some common tools used to troubleshoot:
  
  ▪ Microsoft Message Analyzer
  ▪ Wireshark
  ▪ Ping
  ▪ Tracert
Resources

Architecture White Paper for Microsoft Dynamics GP 2010

Performance Tuning Guidelines for Windows Server 2012 R2

Performance Tuning Guidelines for Windows Server 2012 R2

Refer to the article below for the SQL Server Storage Top 10 Best Practices

Trace flag 4199 is added to control multiple query optimizer changes previously made under multiple trace flags

SQL Server Performance Survival Guide

Trace:
http://support.microsoft.com/kb/314868

Microsoft Message Analyzer

Test.udl