





# New World ERP Maintenance, Migrations and Helpful Tech Tools

#### P R E S E N T E D B Y



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# Agenda

- Introduction
- Server Migrations
- Application Server Maintenance
- SQL Server Maintenance
- NW ERP Maintenance
- Helpful Tools

CONNECT 2

• What are you Using/Questions





# Introduction

•19 years in IT related jobs
•5 Years with Tyler/New World
•LGD TSM Support Team
•Born in San Diego, CA and currently reside in Goodrich, MI





# **Server Migrations**





### Why do you need to migrate Servers?

- Server End of Life
- Windows Server Issues Domain
   Problems Server Instability
- SQL Server Issues
- Take advantage of new technology





# **Types of Migrations**

- Migrate Everything(SQL/APP/eSuite)
- Application Servers (Prod/Test/Train)
- SQL Server
- eSuite Server
- Other Tyler Products (TCM, ReadyForms, Time & Attendance)

### **Best Practices**

- New Server Builds
- Check.tylertech.com
- Mirror Old Servers
- Technical currency Matrix
- SQL Maintenance Plans
- Not Recommended -In Place Upgrades





### **Server Migration Timeline**

#### **Determine Needs**

App Server Migration SQL Server Migration eSuite Server Migration Migrate Integrating Products

#### Start Migration

Migrate SQL Data Update Tyler Deploy Info Force Deploy to New Servers Migrate Historical Documents/Forms

#### Server Set-Up

Build Servers Install-Prereqs SSL Certs Document Your Accounts Install/Configure Tentacles

#### Testing/Cut-Over

Test NW ERP Verify Custom Forms/SSRS Working Cut-Over and Migrate Current DBs



Let's Start



# Check.TylerTech.com

- Check to meet minimum specifications each year
- <u>https://check.tylertech.com/</u>
- Put in your email and *Tyler* as the password

Self Service Hardware Recommendations

### CONNECT 2

#### SITE ASSESSMENT

New

Your site's system requirements are contingent upon several factors. This section will help Tyler determine which setup is best for you.

For each of the following applications that your site will use, answer the question for each application variable.

World ERP	Number of users	<ul> <li>1-50</li> <li>51-100</li> <li>101-200</li> <li>200+</li> </ul>
	Will you be using the Decision Support (Business Analytics) product?	● No ○ Yes
	Will you be utilizing the Utilities product in New World ERP?	● No ○ Yes
	Will you be utilizing eSuite or the MyCommunity applications?	● No ○ Yes

	_		_
PRODUCTION			
	DB	AS	SSRS
Processor Virtual Cores	4	4	4
Physical Cores	4	4	4
Memory	24	16	16
Storage	500GB	100GB	100GB
	Test	Test	Test

#### Technical Currency Matrix

- Found on Help Central
- Lays out the direction of ERP regarding current capabilities and future releases
- Planning tool to stay ahead
- Updated with each year



				orted Release		
No Longer Tested. We believe t	he software will w				the software works in supported products, the issue is not likely to be fixe	d.
		1	Not Supported. Is:	sues will not be ad	dressed.	
			Investiga	ating this product		
Status			Forecast			
Product Type - Product	2022.1 (2Q 2022)	2023.1 (2Q 2023)	2024.1 (2Q 2024)	2025.1 (2Q 2025)	Notes (EOMS = End of Mainstream Support)	Supporting Link
Web Browsers						
IE11					Supported through life of Windows 10.	IE11 Support
					* Chrome, Firefox, Safari, Edge. When using Safari on a Mac, network	
					printers (installed on the App Server need to be used for auto-printing	
					functions like receipts, ROG forms and Inventory Issue tickets. Local	
Multi-Browser Support for ERP (Browser Agnostic)					printers are not supported on Mac for auto-printing functions.)	
Browser Agnostic for eSuite						
.Net Framework Versions						
.Net 4.6					No EOMS date set as of 8/11/2016	.Net Support
.Net 4.6.1					No EOMS date set as of 8/11/2016	.Net Support
.Net 4.6.2					No EOMS date set as of 8/11/2016	.Net Support
.Net 4.7						
.Net 4.7.1						
.Net 4.7.2						
.Net 4.8						
SQL Server Versions					Latest Service Pack + CU recommended	
SQL 2012					EOMS - 7/11/2017	SQL 2012 Support
SQL 2014					EOMS - 7/9/2019 - Support goes away in version 2024.1.5 of NWERP.	SQL 2014 Support
SQL 2016					EOMS - 7/13/2021	SQL 2016 Support
SQL 2017					EOMS - 10/11/2022	SQL 2017 Support
SQL 2019					EOMS - 2/28/2025	SQL 2019 Support
SQL 2022					EOMS - 1/11/2028	SQL 2022 Support
Server OS Versions					Latest Service Pack recommended	
Windows Server 2012					EOMS - 10/9/2018	Server 2012 Suppor
Windows Server 2012R2					EOMS - 10/9/2018 - Support goes away in version 2024.1.5 of NWERP.	Server 2012 Suppor
Windows Server 2016					EOMS - 1/11/2022	Server 2016 Suppor
Windows Server 2019					EOMS - 1/9/2024	Server 2019 Suppor
Windows Server 2022					EOMS - 10/13/2026	Server 2022 Suppor
3rd Party Server Software						
Software Pre-Reqs						
Rabbit MQ 3.3.0						
Rabbit MQ 3.6.16						
Erlang 17.0						
Erlang 20.3						
Java Runtime Environment 8 Update 161						



### **Pre-Install Preparations**

- Request License from Tyler for NW
   ERP
- SSL Cert
- Current SQL Database Backups
- Pre-Req Software Microsoft Visual C++ Redistributable 2015 SQL Server 2012 Native Client .Net Framework 4.8 .Net Core 2.2 Powershell 5.1
- Windows Roles/Features
- Windows Server/SQL Install Media CONNECT 2



### **Tyler Current Version Recommendations**

Server OS: Windows Server 2022

SQL Server Version: SQL 2022

No Longer Supported: SQL 2012, Server 2012



SQL 2014 and Windows Server 2012R2 Support goes away in version 2024.1.5 of NWERP.

CONNECT  $\hat{2}$ 

No Longer Tested: SQL 2014, Server 2012R2



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#### Technology Update (SQL Server 2014 and Windows Server 2012 R2)

In our published Technical Currency Matrix, New World ERP maintains the various levels of ongoing support for various, relevant technologies. For some time now, we've indicated that *these* technologies are no longer being tested with our software. At this point, Microsoft is communicating that extended support for Windows Server 2012R2 is ending on 10/10/2023 and SQL Server 2014 is ending on 7/9/2024. New World ERP will plan to fully stop support on these technologies in line with Microsoft's dates. For these reasons, we are recommending you review your infrastructure as soon as possible and make sure your environment is current.

Some questions you may have:

1. What technologies will you support and for how long?

1. Our <u>Technical Currency Matrix</u> tracks this information for you on the Server Software tab.

2. How do I complete the migration?

1. You can find documentation for the migration on <u>Help Central</u>. Tyler also offers migration services or hosting services. If you would like to look into contract on either, please reach out to your account manager (or Support).

3.What happens if I stay on these technologies past the end date of support?

1. The software will likely work, at least for a period of time. However, no support will be extended for SQL Server 2014 or Windows Server 2012R2 after the end dates listed above. Microsoft also will not be offering extended support or updates past those dates. It is in your best interest to move to new technologies or to work with us on moving into Tyler hosting.





# **SQL Server Migrations**





# **SQL Server Migration**

- Recommended approach
  - Build new SQL box
- Migrate databases to new SQL/SSRS box when complete
- Point your test/prod environment towards your new SQL box
  - The migration is low risk when you build a new SQL box. New application servers should be done as a sperate project
  - You can migrate test first for comparison then migrate live at a later date.
- Remember to also migrate other Tyler Products
- Set-Up A/V Exclusions



#### 🐮 SQL Server 2022 Setup

#### Edition

Select the edition of SQL Server 2022 you want to install.

Global Rules Product Updates Install Setup Files Install Rules Installation Type Edition License Terms Feature Selection Feature Rules Ready to Install Installation Progress Complete Select an edition of SQL Server to install. You can choose to either use a SQL Server license that you have already purchased by entering the product key or choose pay-as-you-go billing through Microsoft Azure. You can also specify a free edition of SQL Server: Developer, Evaluation, or Express. Evaluation has the largest set of SQL Server features, as documented in SQL Server Books Online, and is activated with a 180 -day expiration. Developer edition does not have an expiration, has the same set of features found in Evaluation, but is licensed for non-production database application development only. To upgrade from one installed edition to another, run the Edition Upgrade Wizard.

#### O Specify a free edition:

Evaluation

Use pay-as-you-go billing through Microsoft Azure:

Warning: To enable this option, you must have an active Azure subscription that you will be required to provide along with a resource group, Azure region, and tenant ID later in setup. For more information, see https://aka.ms/ArcEnabledSqIPAYG.

#### Enter the product key:

□ I have a SQL Server license with Software Assurance or SQL Software Subscription
□ I have a SQL Server license only



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# **Temp DB Best Practices**

- **Separate Storage**: Isolate TempDB on its own disk for optimal performance. Avoid placing it on the same disk as user databases or system files.
- **Proper Sizing**: Allocate adequate space for TempDB based on your workload. It's recommended to have multiple data files, each sized equally, to balance I/O across multiple disks.
- Number of TempDB data files: Best practices dictate that one TempDB data file be created for each CPU core on the server, up to a maximum of 8 data files.
- **Avoid Autogrowth**: Preallocate space for TempDB to avoid frequent autogrowth events, which can cause performance degradation.

#### SQL Server 2022 Setup × **Database Engine Configuration** Specify Database Engine authentication security mode, administrators, data directories, TempDB, Max degree of parallelism. Memory limits, and Filestream settings. Edition Server Configuration Data Directories TempDB MaxDOP Memory FILESTREAM License Terms TempDB data files: tempdb.mdf, tempdb\_mssql\_#.ndf **Global Rules** ٠ Microsoft Update Number of files Product Updates 128 + Initial size (MB) Total initial size (MB): 512 Install Setup Files Total autogrowth (MB): 256 Autogrowth (MB): Install Rules Feature Selection Data directories: Microsoft SOL Server/MSSOL16.SOL2022/M Add ... Feature Rules Remove Instance Configuration Server Configuration **Database Engine Configuration** Feature Configuration Rules Ready to Install Installation Progress Complete templog.ldf TempDB log file: 128 • Setup could take longer with large initial size. Initial size (MB): \$ 128 Autogrowth (MB): Log directory: C:\Program Files\Microsoft SQL Server\MSSQL16.SQL2022\MSSC < Back Next > Cancel





Image: Second Size Second Management Statis         Feb         Edit Second Size Second Secon	●●●●●●● ● /118日(〒11日)21日の)> マー第一) ● /118日(〒11日)21日の)> マース	ø. ≥ V.
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		5

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### SQL Server Migration Steps

- Install Microsoft SQL Server
  - Configure SQL using industry standard best practices
  - Setup Microsoft standard maintenance plans
- Migrate copies of all New World ERP databases to new SQL servers
- SQL Server instructions found on Help Central
  - These SQL components are needed for New World ERP and DSS:
    - SQL Server Analysis Services
    - SQL Server Integration Services
    - SQL Server Reporting Services
    - SQL Server Database Engine
    - SQL Server Management Studio

# **Application Server Migrations**





# **Application Server Migrations**

- Create new application and eSuite servers with Windows Server OS
- Follow NWERP installation guide from the start
- This will include roles and features for the server and prereqs
- Set Anti-Virus exclusions
- Install Tyler Tentacle on App Server/eSuite Server

#### New Server Setup Guide

This guide is meant to be an addition to the Installation Guide to account for one-time tasks that are required when installing to a new set of servers.

Note: The sections below are listed sequentially from top to bottom. Please follow them in order. At the end of each section, a link will guide you to the next section in the sequence. Some steps within a section may not apply to you.

Hardware Requirements

- Technical Currency
- Tyler Product Compatibility
- Installing New World ERP (Prerequisites)
- SQL Server Setup
- Server Roles/Setup
- Setting up Users on a New Server

Next steps: Installing New World ERP (Prerequisites)





#### 🛉 Home

#### Product Configuration | New World Orchestrator

New World Configuration Se... New World ERP New World ERP DSS New World HR Reporting New World Management Co... **New World Orchestrator** New World Settings Migrati... New World Special Updates New World Web API New World eSuite Services New World eSuite Websites **New World myInspections** Tyler 311 **Tyler Cashiering Server** Tyler Cashiering for EnerGo... Tyler Cloud Ecosystem Portal Tyler Hub **Tyler Identity** 

Environment Test O Go to Deployment Common Variables Rew World ERP Variables Tyler Cloud Ecosystem Information New World Orchestrator New World Configuration Service New World ERP New World ERP DSS New World eSuite Services New World eSuite Websites

#### **Ready for Migration in Tyler Deploy**

- Use Orchestrator for setting up new environmental Information DB Server DB Names(if changed) FQDN/Domain Name Service Account(if changed) SQL Account(if changed) SSRS Site/Account
- FORCE Redeploy Products(same version)
- Deploy Products in This Order:

 Configuration Service
 Settings Migration
 Identity/Omnibar
 Management Console
 ERP
 eSuite Services
 eSuite Websites
 HR Reporting
 Hub
 DSS
 Other Tyler IPs

nologies 2024

Tyler Omnibar

### **Post Install Set-Up**

- Apply NW ERP License to Management Console
- Configure lingering Management Console settings (compare old mgmt. console settings)
   PDF Conversion service General Tab information Search Index Service
- Confirm all Automatic ERP Services are started
- Migrate File storage Documents and Custom Documents to new File storage
- Turn off old Server App service to prevent users for accessing!





# **Testing Environment**

- Testing of the technical pieces of the New World ERP software:
  - HTML Reporting
  - HTML to PDF Conversion
  - SSRS Reporting
  - SSRS to PDF Conversion
  - Site connectivity
  - Printing
- Test checklists can be found on help central



Applications & Maintenance What's New Year End More

esting checklist

#### Your search for "testing checklist" returned 19 result(s).

#### UM Testing Checklist

Link to Word doc Each time a new release or service pack is readied for deployment, Tyler Technologies thoroughly tests all parts of the software; however, due to the configurability of the \_\_\_\_

Library - Documents/UM/Testing Checklists/UM Testing Checklist.htm

#### FM Testing Checklist

#### CD Testing Checklist

#### eSuite Testing Checklist

Link to Word doc Each time a new release or service pack is readied for deployment, Tyler Technologies thoroughly tests all parts of the software; however, due to the configurability of the ...

Library - Documents/eSuite/Testing Checklists/eSuite Testing Checklist.htm

#### HR Testing Checklist

Link to Word doc Each time a new release or service pack is readied for deployment, Tyler Technologies thoroughly tests all parts of the software; however, due to the configurability of the ...

Library - Documents/HR/Testing Checklists/HR Testing Checklist.htm



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### **Different Options to achieve Server Migrations**



- <u>Migrate Data in House</u> On-site IT staff handles the migration All work is performed by IT staff NW ERP Support available for simple questions and guidance
  - <u>Migration Provided by NW ERP(SQL/APP Servers)</u> - On-Site staff will build new server to check.tylertech specs and install Windows Server
  - Tyler Staff will Install Pre-Reqs, configure servers, install SQL if applicable
  - Migrate SQL DBs, configure Maintenance Plans
  - Install NW ERP Products via Tyler Deploy
  - Configure post migration clean-up/configurations
  - Migrate Filestorage and Custom Docs
  - Perform Cut-Over at a later date to "Go-Live"



# **SQL Server Maintenance Plans**



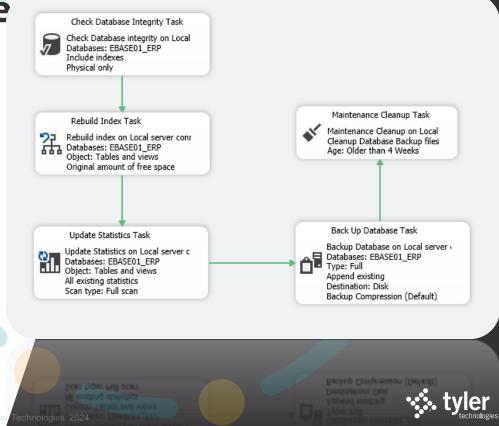


# SQL Server Migration Database Maintenance

- Database integrity check
- Rebuild indexes
- Update stats
- DB backups

CONNECT 2

- Maintenance clean up
- Schedule to run either Nightly or Weekly depending on need



# **Transaction Log Backup**

- Backup Databases Only Full Recovery databases
- Maintenance Cleanup
- Schedule Hourly

CONNECT 2/

Will prevent Logs from growing abnormally large

	Back Up Database Task
ĉ	Backup Database on Databases: <select more="" one="" or=""> Type: Full Append existing Destination: Disk Backup Compression (Default)</select>
	Ţ
	Maintenance Cleanup Task
*	Maintenance Cleanup on Cleanup Database Backup files Age: Older than 4 Weeks

😰 Back Up Database Task			×
Connection: Local server connection		$\sim$	New
General Destination Options			
Backup type:	Transaction Log		~
Database(s):	Specific databases		<b>–</b>
Backup component			
Database			
O Files and filegroups:			
Back up to:	Disk ~		

View T-SQL

Cancel



Help

# **Helpful Tech Tools**





### WinDirStat

デジート 🖻 🔍 🖬 ひ ime	Subtree Percent	Perce	> Size	Items	Files	Subdire	Last Change	Attributes		Extensi	Col	Description	> Bytes	9/ Du	Files	
OSDisk (C:)	Subtree Percent	[0:35 s]	42.5 GB	135.201	112,112	23.089		Attributes		dll	01	Application extension	7.6 GB	17.9%	15.352	
Users	_	32.8%	14.0 GB	31,953	25.232			R	=	sys		System file	7.1 GB	16.8%	945	
Windows		29.4%	12.5 GB	78,242	64,372	13.870				.vdi		VDI File	6.9 GB	16.2%	3	
<files></files>		16.1%	6.8 GB	6	6	0	2/11/2010 8:05:26 PM		-	m .7z		7Z File	6.1 GB	14.4%	3	
🗼 tmp		14.4%	6.1 GB	4	4	0	2/8/2010 7:20:17 PM			exe.		Application	2.7 GB	6.2%	2,616	
Program Files (x86)	1	5.3%	2.2 GB	20,963	19,085	1,878	2/12/2010 2:21:22 AM	R		.pst		Microsoft Office Outlook Pe	1.8 GB	4.2%	3	
Program Files		1.2%	525.6 MB	3,118	2,789	329	2/11/2010 11:36:58 PM	R		,msi		Windows Installer Package	817.2 MB	1.9%	63	
🍶 apps	1	0.7%	302.8 MB	85	77	8	1/5/2010 11:33:43 PM	A		.zip		Compressed (zipped) Folder	531.0 MB 508.2 MB	1.2%	60 21	
ProgramData		0.1%	28.6 MB	623	413	210	2/12/2010 2:10:43 AM	н	-	.msp		Windows Installer Patch	173 0 MB	1.2%	1 450	





# **IIS Crypto**

 Used before server migrations, select best practices and reboot App Servers IIS Crypto

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Schar

Cipher

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Templ

Site Sca

Abo

IIS Crypto is a free tool that gives administrators the ability to enable or disable protocols, ciphers, hashes and key exchange algorithms on Windows Server.

It also lets you reorder SSL/TLS cipher suites offered by IIS, change advanced settings, implement Best Practices with a single click, create custom templates and test your website.

Server Protocols         Ciphers         Hashes         Key Exchanges              Multi-Protocol Unified Hello            NUL            Multi-State            Multi-Protocol Unified Hello            Multi-State            Mult	Schannel These settings enable or disable default for the operating system			ans no setting has been specified and th
Multi-Protocol Unified Hello     PCT 1.0     SSL 2.0     SSL 3.0     ✓ TLS 1.0     ✓ TLS 1.1	Multi-Protocol Unified Hello     PCT 1.0     SSL 2.0     SSL 3.0     ✓ TLS 1.0     ✓ TLS 1.1	NULL DES 56/56 RC2 40/128 RC2 128/128 RC4 128/128 RC4 40/128 RC4 40/128 RC4 64/128 RC4 64/128 RC4 128/128 Triple DES 168 AES 128/128	MD5 SHA SHA 256 SHA 384	Diffie-Hellman PKCS
	Multi-Protocol Unified Hello     PCT 1.0     SSL 2.0     SSL 3.0     ✓ TLS 1.0     TLS 1.1			



### Notepad++

- Advanced Text/Source Code Editor
- Huge library of plugins
- Useful for looking at .config/.xml files in a cleaner format than notepad
- Will allow you to change to files you normally have to copy to desktop, make changes and paste into original location
- Helpful plugins include COMPARE which will allow you to compare 2 different files to each other

Chillsers\arkle\Deskton\BetSlip.vm P = C C(Users\arkie\Desktop\Bet.. × @ Internet Explorer is not your de... <?xml version="1.0"?> <BetSlip xmlns:z="http://schemas.microsoft.com/2003/10/Serialization/" xmlns:i="http://www.w3.org/2001/XMLSchema-</p> instance" xmlns="http://schemas.datacontract.org/2004/07/Arkle.DAL.EF" z:Id="i1"> + <EntityKey xmlns="http://schemas.datacontract.org/2004/07/System.Data.Objects.DataClasses" z:Id="i2" xmlns:a="http://schemas.datacontract.org/2004/07/System.Data"> <AccumulatorLiabilities/> <ArkleMessages/> <AuthorisationText i:nil="true"/> <BarCodeText>121065133171013</BarCodeText> <BetSlipExceptions/> <BetSlipId>248089</BetSlipId> <BetSlipIdentifier i:nil="true"/> + <BetSlipImages> <BetSlipStakeChanges/> + <Bets> <Currency>GBP</Currency> <CustomerID i:nil="true"/> <DateAccepted>2013-11-13T10:13:54.403</DateAccepted> <DatePayout i:nil="true"/> <DateScanned>2013-11-13T10:13:08.423</DateScanned> <DateSlipSettled>2013-11-13T18:02:13.117</DateSlipSettled> <DateUploadedToSecurity i:nil="true"/> <DateWarehoused i:nil="true"/> <HideLiabilityUntilTime i:nil="true"/> <ImageID i:nil="true"/> <LovaltyCustomerIdentifier i:nil="true"/> <MonitorCustomerID i:nil="true"/> <NextSettleTime i:nil="true"/> <PaymentTypeID>1</PaymentTypeID> <PlacementTypeID i:nil="true"/>





### Logparser

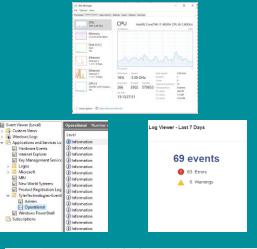
- Log Parser is a free tool from Microsoft that allows users to access text-based data, such as XML, CSV, and log files, and key data sources on the Windows operating system. It uses SQL-like syntax to extract information from logs.
- Input formats: IIS log files, Windows Event log, generic XML, CSV, TSV, and W3C Output formats: Text files: CSV, TSV, XML, W3C, user-defined Other formats: A SQL database, a SYSLOG server
- Log parsing extracts information in your logs and organizes them into fields.

🐼 Command Prompt	X
::\Program Files\Log Parser 2.2>logparser /h	-
licrosoft (R) Log Parser Version 2.2.10 Jopyright (C) 2004 Microsoft Corporation. All rights reserved.	
sage: LogParser [-i:(input_format)] [-o:(output_format)] (SQL query) { file:(query_filename)?[parami=value1] [(input_format_options)] [(output_format_options)] [-q[:ONIOFF]] [-savePfraults] [-queryInfo] [-stats::ONIOFF]] [-savePfraults] [-queryInfo]	
LogParser -c -i: <input_format> -o:<output_format> <from_entity> <into_entity> K<where_clause>1 [<input_format_options>1 [<output_format_options>1 [=multisiste1:004/100Fp1] [=q[:004/10Fp1] [=ex=max_errors&gt;1 [=iw1:004/10Fp1] [=stats1:004/10Fp1] [=queryInfo]</output_format_options></input_format_options></where_clause></into_entity></from_entity></output_format></input_format>	
<pre>-i:(input_format&gt; : one of IISW3C, NCS4, IIS, IISODBC, BIN, IISMSID, HTTPERR, URLSCAN, CSU, ISU, USC, ARL, EUT, ETH, NETMON, REG, ADS, TEXLINE, IEXINORD, PS, CON (if onitted, will guess from the FROM clause) or:(output_format&gt; : one of CSU, ISU, MRL, DAINGRHID, CHART, SVSLOG, NEUDOUISU, WAIL, VSC, ISO, SQL, TPL, NULL (if onitted, NEUDOUISU, WAIL, VSC, SQL, TPL, NULL (if onitted, ULL of parse errors before aborting; default is -1 (innore all)</pre>	
-o: <output_format> : one of CSU, TSU, XML, DATAGRID, CHART, SYSLOG, NEUROUIEW, NAT, W3C, IIS, SQL, TPL, NULL (if omitted, will guess from the INTO clause)</output_format>	
-q[:0N:0FF] : quiet mode; default is OFF -e: <max_errors> : max # of parse errors before aborting; default is -1</max_errors>	
-iwl:ON!OFF1 : ignore all) -stats[:ON!OFF] : display statistics after executing query; default is ON	
-c use built-in conversion query -multiSite[:ON:OFF] : send BIN conversion output to multiple files depending on the SitelD value; default is OFF	
-saveDefaults : sade specified options as default values -restoreDefaults : restore factory defaults -queryInfo : display query processing information (does not execute the query)	
xamples: LogParser "SELECT date, REVERSEDNS(c-ip) AS Client, COUNI(*) FROM file.log WHERE sc-status(>2800 GROUP BY date, Client" -e:10 LogParser file:myQuery.sql?myInput=C:ttempYerx.log;myOutput=results.csv LogParser -c -i:BIN -o:V3C file1.log file2.log "ComputerName IS NOT NULL"	
lelp: -h GRAMMAR - SQL Language Grammar -h FUNCTIONS [ <function> ] : Functions Syntax</function>	
-h -i: <input_format> : Help on <input_format></input_format></input_format>	
-h -o: <output_format> : Help on <output_format> -h -c : Conversion help</output_format></output_format>	
::\Program Files\Log Parser 2.2>logparser "Select count(distinct c-ip) from ex0" 102.log" XOUNT(DISTINCT c-ip)	2
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tatistics:	
lements processed: 6384 lements output: 1 Secution time: 0.03 seconds	
:\Program Files\Log Parser 2.2>	





### **Built in Windows Tools**



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	and a	774	Read (\$7344)	100/06 (B/14-0	Total (\$140)	LO PROVIDE			
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Memory		<ul> <li>A strend from the strend strend</li></ul>			of Physical Adventory		(77)		

#### Task Manager

- Check CPU/ Memory Usage
- Up Time of Server
- Users logged in

#### **Event Log**

- Tyler Technologies Event Log
- Look up Errors and Warning tied to Tyler products

#### **Resource Monitor**

- Deeper Breakdown of what components are getting used
- Can be used to see where the slowness is coming from





### SQL Tools

Trace Properties

General Events Selection

Review selected events and event columns to trace. To see a complete list, select the "Show all events" and "Show all columns" options.

Events	ApplicationName	NTUserName	LoginName	CPU	Reads	Writes	Duration	Client ProcessID	SPID
Stored Procedures									
RPC:Completed	<b>V</b>	<b>V</b>	<b>V</b>	V		V			R
	il has been completed.						☐ Show	al events	1
RPC Completed	il has been completed.							al events al columns	;
RPC.Completed Occurs when a remote procedure ca	If has been completed.							all columns	1
c RPC Completed Docurs when a remote procedure ca No data column selected.	il has been completed.								:

#### **SQL Server Profiler**

- Identify Bottlenecks
- Trace Server Performance
- Filtering capabilities (duration/reads/writes/CPU)
- You can save a trace to a SQL table and then query it

EventClass	TextData	ApplicationName	NTUserName	LoginName	CPU	Reads	Writes	Duration	ClientProcessID	SPID	StartTime
PC:Completed		.Net SqlClie		nwERPsa	0	22	0				2021-01-2
PC:Completed	exec [Suite].[GetApprovalRequestsCo	.Net SqlClie		nwERPsa	109	2868	0	112	19928	198	2021-01-2
PC:Completed	exec sp_reset_connection	.Net SqlClie		nwERPsa	0	0	0	0	19928	198	2021-01-2
PC:Completed	exec sp_reset_connection	.Net SqlClie		nwERPsa	0	0	0	0	19928	152	2021-01-2
PC:Completed	exec sp_executesq] N'SELECT [	.Net SqlClie		nwERPsa	63	4428	0	60	19928	198	2021-01-20
PC:Completed	exec sp_reset_connection	.Net SqlClie		nwERPsa	0	0	0	0	19928	198	2021-01-20
PC:Completed	exec sp_executesql N'SELECT TOP (1)	.Net SqlClie		nwERPsa	0	4	0	0	19928	198	2021-01-20
PC:Completed	exec sp_reset_connection	.Net SqlClie		nwERPsa	0	0	0	0	19928	198	2021-01-20
PC:Completed	exec sp_executesql N'SELECT [	.Net SqlClie		nwERPsa	16	1330	0	6	19928	198	2021-01-20
PC:Completed	exec [Suite].[GetApprovalRequestsCo	.Net SqlClie		nwERPsa	125	2876	0	128	19928	152	2021-01-20
PC:Completed	exec sp_reset_connection	.Net SqlClie		nwERPsa	0	0	0	0	19928	152	2021-01-20
race Stop											2021-01-20
is stopped.									Ln 130	, Col 2	Rows: 132



### **SQL** Tools

Ĩ	Sp_wh		2011 (12)		de de el y	and the	ichael.adnson (71))	adedae	Jonaqu	trichael.adnson		rdedue	ry36.sql - not ci
9	6 - 4 - 4												
1	Results	Messages											
	SPID	Status	Login	HostName	BlkBy	DBName	Command	CPUTime	Disk IO	LastBatch	ProgramName	SPID	REQUESTID
	1	BACKGROUND	sa			NULL	XTP_CKPT_AGENT	0	0	01/13 01:12:30		1	0
	2	BACKGROUND	sa			NULL	LOG WRITER	11906	0	01/13 01:12:33		2	0
	3	BACKGROUND	sa			NULL	RECOVERY WRITER	1171	0	01/13 01:12:33		3	0
	4	BACKGROUND	sa			NULL	LAZY WRITER	1468	0	01/13 01:12:33		4	0
	5	BACKGROUND	sa			master	SIGNAL HANDLER	0	0	01/13 01:12:33		5	0
	6	BACKGROUND	sa			NULL	XIO_LEASE_RENEWA	234	0	01/13 01:12:33		6	0
	7	BACKGROUND	sa			NULL	LOCK MONITOR	265	0	01/13 01:12:33		7	0
	8	BACKGROUND	sa			NULL	XIO RETRY WORKER	203	0	01/13 01:12:33		8	0

#### SP\_Who2

- Find blocks + current queries
  - BlkBy Column
- This tool is limited in use but also powerful
  - Included in SSMS

CONNECT 2

SQL	Query41.sql - trich	ael.adnson (6	4))* 🕫 🗙 SQLQuery40.sql - tr…ichael.adnson (73))*	SQLQuery39.sql - trichael.adn	ison (71))	SQLQ	uery
	exec sp_whois	active					
100 9	%						
	Results Messa	ges					
	dd hh:mm:ss.mss	session_id	sql_text	login_name	wait_info	CPU	t
1	00 00:00:00.480	65	guery CREATE PROCEDURE [dbo].[WriteLockS</td <td>NT AUTHORITY\NETWORK SERVICE</td> <td>NULL</td> <td>(</td> <td>0</td>	NT AUTHORITY\NETWORK SERVICE	NULL	(	0
2	00 00:00:00.473	68	query (@Snapshotld uniqueidentifier,@lsPermanen</td <td>NT AUTHORITY\NETWORK SERVICE</td> <td>NULL</td> <td>1</td> <td>5</td>	NT AUTHORITY\NETWORK SERVICE	NULL	1	5

#### SP\_WhoIsActive

- <u>Real-Time</u> view of SQL performance
  - Needs to be installed



### SQL Server Query Store

α- ¥ ¥ = ∀ <b>C</b> ↔								
Databases ^								
System Databases	-				- 0 ×			
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Programmability     Service Broker	A Moning	<ul> <li>Monitoring</li> </ul>						
	F Transaction Log Shipping	Data Rush Interval (Minutes)	15					
🕫 📶 Storage	P Guery Store	Statistics Collection Interval	18	NF				
E Security	Read Property lies	Guery Store Retention						
🗉 🛑 Database Snapshots		Max Plans Per Query	200					
EBASE001_CONFIG		Max Size (MB) Query Store Capture Mode	Auto					
EBASE001_CSH		Size Based Ceanup Mode	Att					
IE 🖬 EBASE001_DSS		Stale Query Threshold (Days)	30					
EBASEDO1_ERP		Wat Statistics Capture Mode	On					
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🛞 🗰 Views		Stale Threshold						
🛞 🗰 External Resources		Total Comple CPU Time (na)						
🔝 💷 Synonyms		Total Execution CPU Time (ma)						
🛞 🗰 Programmability		Data Flush Interval (Minutes)						
😑 📁 Query Store		The frequency at which query store data is flushed and persisted to dak.						
(6), Regressed Queries								
Q Overall Resource Consumption								
(g) Top Resource Consuming Queries	Connection	Current Disk Usage						
3 Queries With Forced Plans	Server							
<ol> <li>Queries With High Variation</li> </ol>	TROSVERPSUPD802							
(b) Query Wait Statistics	Convertion							
<ol> <li>Tracked Queries</li> </ol>	TYLER bryan weier		V					
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#### What is SQL Server Query Store

It is a repository of historical query information that allows you to monitor, analyze, and tune the performance of your queries. It captures and stores the query text, query plan, runtime statistics, and wait statistics of your queries.

#### How can it be useful

- Find the most expensive queries for CPU, I/O, Memory
- Get full history of query executions
- Get information about query regressions
- Determine how many times a query was executed in the given range of time

#### • Can I use it?

- For new DBs on SQL Server 2022, Azure SQL Database, and Managed Instance, it's turned on by default.

- SQL Server versions 2016-2019, the query store is not enabled by default and will need to be turned on manually





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