

INTRODUCTION TOSQL WORKLOAD ANALYSIS

WHAT IS SQL WORKLOAD ANALYSIS?

It is an add-on to SQL Diagnostic Manager and a component of the IDERA Dashboard. This dashboard is the central portal for several tools from IDERA. These tools include tools for security, backup, business intelligence, and inventory management.

🕘 🕘 🛈 https://localhost/9291/render/lide/27#iestanceNamenDC	C-61024 D+	O Certificate error C 🕕 Idera Dash	board ×				- 0
🍰 🕐 Reports 🕧 Idera Dashboard 🥥 Idera SQLdm Mobile		Contraction of Contraction	oors A				
	Analysis			🛛 univers	al\dcardno d	Administratio	on 🛐 He
HOME ADMINISTRATION							
TOP LOCKED OBJECTS Name Type Lock Wait Time Object's Database	INSTANCE: DC-SQL-04 > LOCK: [Financi						0
DeadlockA USER 414.0s Financial DeadlockB USER 226.0s Financial		(min) CURRENT L Tast updated	OCKING SESSIONS (BLOCKERS) on 6/10/2016 11:04				v
	40.5 1 30.6	6	an Time 5 Gal 2019 23 00 00 If Time 1 Gal 2019 23 00 00 Mar Lack 2016 Data Mar Lack 2016 Da				International Content of American Content of A
	21:20	22:10	23:00	23:50	00:4	0	
	TOP LOCKING PROGRAMS						×
	Programs		Lock Duration	Batch	Login		Machine
	Microsoft SQL Server Management Studio - Duery LAST SAMPLED STATEMENTS UPDATE [Deadlock8] set [] = @1 waitbr delay '00 00 30 000'		414.05 226.05 188.05	() UPDATE [Deadlock8] set [i] = () begin tran update DeadlockA set i = 1	1	ERSALIdcardno	dc-sql-01
	TOP LOCKED STATEMENTS						V
	Statements	Lock Durat	ion Batch	Locked Program	Login	Machine	Database
	UPDATE (DeadlockA) set (i) = @1 O LOCKED BY PROGRAMS		() UPDATE [DeadlockA] set [] = @1	Microsoft SQL Server Management Stu			Financial
- 1 - 2	Microsoft SOL Server Management Studio - Query	414.09			UNIVERSALIdcardno	dc:sql-01	Ra 10

Figure 1: In the IDERA Dashboard, view (for example) the top instances by alert count and by sessions for SQL Diagnostic Manager, the environment alerts for SQL Compliance Manager, the longest-running backup jobs for SQL Safe Backup, the tags for SQL Inventory Manager, and the overall status for SQL BI Manager.

WHAT DOES SQL WORKLOAD ANALYSIS DO?

Identify where SQL Server issues exist. Then, drill down into periods of latency. This way, correlate all of the contributing factors to establish the root cause. Immediately know what databases are processing, drill into SQL statements, and receive actionable advice.

EXPLORE TOP MONITORED INSTANCES

With very few clicks access lots of relevant real-time data and insightful historical trends from frequent sampling.

The web-based user interface presents a consolidated view of various key indicators of performance. By default, the unified view displays the collected data for the last day. Show longer or shorter periods by selecting the corresponding control buttons.

E ADMINISTRAT		ysis					universal/dcardno	O Administr	ration
	NON								
						06-Oct-16 10:04 -	06-Oct-16 11:03 15M	1H 4H 1D	50 AW ?
MONITORED INST	TANCES	C INSTANCE: DC-SQL-0							
Name	Total in DG								
DC-5QL-63	Q13.25	TOTAL IN DB HIGHLIGHTS		~	TOP SQL STATEMENTS				
SQL2012CLUSTER	35483.dts	Name	Total in DB		Statement		Total in DB	Executions	Cutabase
DC-508.04	500.00 1 10	Internal Walt	3650.6s		sp_server_diagnostics		3596 ts		master
the second			263.54		SELECT FROM eye In	in target read it	115.01		masher
		thereal Wast 84.2s (16.05%)	905.29 =		INSERT INTO [TraceLogen] (70.061		50Lcompilanc
		Log Well 8.0s (1.20%)	96.3s =		BACKUP DATABASE ISOLO		61.251		5QL compliance
		fampels VO Wark, 3.0s (6.80%)	00.0s #		RETURN (SELECT DATEDIN	FDL 1970-01-01 0	54.051	207408	SQLB/Reposit
		C5 Week 110.2x (22.03%)	37.75 8		select * trom custanto with (table	ipcko) where zip 8	46.051	0	ProdProcess
		0 West 105.4s (21.00%)			BACKUP DATABASE (SQLOW	mpliance_DC-50_	32.461	0	SQLcompland
					SELECT FROM : IN_MICK_S	petable(C.Vrogr	26.06 /	22	SQLcomplianc
		TOTAL IN DB TRENDING		v					
		400.04		Log Wat	TOP LOGINS				
		380.0		Look West	Login	User	Total in DB	× 0	arcutions
				Tempeti IO West	NT AUTHORITY/SYSTEM	public	3596 ts		
		200.04		Ching OPU	universalization	public	166.0s B		
		10.0		IO West	UNIVERSALlogisate	public	140.3e #		
		10.5		Retrock I/O Halt	UNIVERSALlugion	public	118.0s #		93
				CUR HM	universalaqtis	public	97.7s 8		2103
		10:10	0.24 10.58 10.52		UNIVERSALISGEService	public	90.1s		2
					contractor	public	2.06		
		TOP DATABASES		~	UNIVERSALISCLIPS	public	1.01		
		Database	Total in DB	*					
		master	3772.2s		TOP MACHINES				
		SQLERepository	100.7s		Machine	Total in	08	* Executions	
		SQLcomplianceProcessing	83.0s		d:-ogi-03	4031.		- Lancadora	21995
		ProdProcess	78.0s #		idera-tools	172			100
		SQLcomplance_DC-SQL-03	61.26 1		dc-sql-01	10			
		SQLcomplance	41.05 #						

Figure 2: List the top monitored instances. For a selected monitored instance, see the top waits and their trends, the top databases, the top SQL statements, the top logins, and the top machines.

FOCUS ON PROBLEMATIC OCCURRENCES

With very few clicks drill-down to critical time intervals (for example, from 4 weeks to 5 minutes).

Drill into a more detailed perspective where there are noticeable spikes regarding the system performance. Drill in further by drawing a band around the problematic zone to reassess the contributing factors from that time.

Reports 🕕 Idea Dashboard (😡 ldera SQLdm Mobile									
DERA	E SQLWorkloadAnalysis							universali,dcardno	O Admin	istration E
OME ADMINISTR	RATION									
							05-Oct-16 11.04 -	06-0d-16 11:03 15M	1H 4H 1D	50 <i>EW</i>
MONITORED IN	NSTANCES		04							
Name	Total in DG									
0C-5QL43	87									
SQL2012CLUSTER	25.00	TOTAL IN DB HIGHLIGHTS			v	TOP SQL STATEMENTS				
Provention and a second second		Name		d in DB	*	Statement			Executions	Database
DC-50L44	4582.45 8	Using CPU Lock Wait		176.4s		WITH raw_data1.hane.tof		754.2s		0 SQLsecure
		OS Wat		60.0s		DECC CHECKDB (SQLsec) UPDATE [DeadlockA] set 8		414.05		 SUSSECURE Financial_Re
		NO Wat		60 9s		UPDATE (Deadlock8) set ()		226.05		17 Financial, Re
		Informal Walk		195. to		Insert into #Active#alts sele		217.05		2 master
		Log Wat		23.05		WITH IS AS (SELECT data		201.05		19 master
		Tempdo I/O Wat		17.051						
		Remote Wat		11.05 1						
		Network I/O Wait		3.0s 1		TOP LOGINS				
						Login	User	Total in DB	*	Executions
						universallagión	public	1761.21	_	
		TOTAL IN DB TRENDING			~	UNIVERSALIdcardino	public	1141.05		14
		25.0m			E Hand Ref	TechSupport	public	1010.0s		
				+	Log Weet	UNIVERSALlogisate	public	497.15		
		16.7m			Lot Wet	UNIVERSALIngton	public	82.0s		54
					CO #64	UNIVERSALIsquervice	public	78.05		,
		10.0			Cong CPU IC Wait	UNIVERSALISCLAM	public	15.06 1		
				-	The sector of th	UNIVERSALISGUM	public	3.0s		
		-			E Fanata Tak					
		14:00	20.00	02.00	08:00	TOP MACHINES				
						Machine	Total in	08	V Execute	
		TOP DATABASES			~	idera-tools	1992.	21 💷	_	
						00.000-04	1521.	19		55
		Detabase		Total in DB		dc-sc#-01	663.			14
		master SQLsecure		2070.2s		dc-ops-01	412	ba and a second s		
		Financial, Records		658.0s						
		mide mide		444.0s						
				000.05		TOP PROGRAMS				

Figure 3: Using any trend chart, zoom into a time interval by clicking and dragging a rectangle over the relevant sub-domain.

EXPLORE TOP LOCKED OBJECTS

With very few clicks drill-down from problems to their root cause.

See the impact regarding queries, CPU, and lock waits. Select a hyperlink to identify the SQL statements, the corresponding users, and the application detail. This view also shows how long the issue persisted for any given category.

🕒 💿 🔲 https://kcakket/1010/www.bas/2010/watawootlawas.00	D- Q Cetificates	mor G 🕕 Idea Dashboard 🚿					0 *
	Analysis			R universa	lidcardno o	Administration	B He
HOME ADMINISTRATION							
TOP LOCKED OBJECTS	INSTANCE: DC-SQL-04 > LOCK: [Financial_Records	s.dbo.DeadlockA]					
nadiochA UNER 414.04 Financial nadiochB UNER 224.04 Financial		CURRENT LOCKING SESSION	S (BLOCKERS)				0
	OBJECT LOCK WAIT TIME TRENDING						v
	40.5 30.5 30.5 40.5 4 21.35	Burt Time & Gat 2014 23 Get Time & Gat 2019 23 Francisca Time 2010 20 Total Loss Time 2010 (n	1.50	139	0.0	Next	late Lock sation Lock Lock Lock Lock
	1.10	2017	1.00	2017			
	TOP LOCKING PROGRAMS						¥
	Programs Morosoft SQL Server Management Studio - Query UKAT SMAPLED STATEMENTS UPCATE (Deadlock[] set [] = @1		414.0x	Balch () UFDATE [Deadlock0] set] (= @1			Aschine Ic-sc#-01
	wattor delay 10 00 30 000'		188.0s	begin fran update DeadlockA set i = 1 s	valtor delay '		_
	TOP LOCKED STATEMENTS Statements	Lock Duration Batch		Looked Research	1.440	Machine D	v latabase
	UPDATE [Deadlock4] set [[= @1 OLOCED BY PROGRAMS		ATE [DeadlockA] set]] = @1	Locked Program Microsoft SQL Server Management Stu	Login		Inancial_
a 🐛 z 😫 💋	Moreoff SQL Server Management Studie - Overy	414.01			UNIVERSALIdeardee	60-149-01	R 10

Figure 4: List the top locked objects. For a selected locked object, display the trend for the wait times, the top locking programs, and the top locked statements.

EXPLORE TOP LOGINS

Back out of the previously selected period to show user-specific information.

This information identifies where the user was accessing the system from and other associated SQL statements. Cycle through additional users in this view.

	🥥 ldera SQLdm Mobile								. I-
DERA	E SQLWorkloadAnalysi	•					universali/dcardno C	Administr	ation 🛐
ME ADMINIST	RATION								
						05-Oct-16 11.04 -	06-Oct-16 11 03 15M 1H	41 10	50 AW 7
MONITORED	NSTANCES	KINSTANCE: DC-SQL-04							
Name	Total in DG								
00-501.43	8.0								
SGL2012CLUSTER	25.00	TOTAL IN DB HIGHLIGHTS		v	TOP SQL STATEMENTS				
		Nate	Total in DB	*	Statement		Total in DB V Exec		Detabase
DC-50L-64	4502.45 @	Using CPU	2576.45		WITH raw_data() thane, toff		754.25		master
		Lock Wall OS Wall	641.0s		DECC CHECKDB (SQLsec		517 0s	0	SQLsecure
					UPDATE (DeadlockA) set ()				Financial, Re
		New Oil	400.95		UPDATE [Deadlock8] set []		226.05		Financial_Re
		Informal Walk	295.ts		Insert into #Active/Walts sele		217.05		masher
		Log Wat	23.06		WITH IS AS (SELECT data	base_id , SUM(size *	201.05	109	macher
		Tempdb I/O Wat	17.05 1						
		Ramota Wat	11.0s i		TOPLOGINS				
		Network I/O Walt	3.0s 1		Login	User	Total in CB	× 6	ecutions
					universalugión	public	1761.21		85
		TOTAL IN DB TRENDING		~	UNIVERSALIdcardino	public	1141.05		147
		25.0m			TechSupport	public	1010.05		
				E Hernal Mail	UNIVERSALughale	public	497.15		
			+	Lock Wed	UNIVERSALIndon	public	82.0s #		540
		16.7m	-	Tampiti 10 Mar	UNIVERSALlogbervice	public	78.05		17
				CIS Meet	UNIVERSAL/SQLein	public	15.04 1		
		58.0	_	IC West	UNIVERSALISOLINI	public	3.06		
				Retrack 10 Had	Contraction of the second	Pares -			
				Cut the					
			20.00 02.00	08.00	TOP MACHINES				
					Machine	Total in	08	Executions	
		TOP DATABASES		~	idera-tools	1992.	21 🗰		
					00-04-04	1521.	10		559
		Database	Total in DB	Ŷ	dc-sql-01	663	01		140
		marter	2070.2s		dc-ops-01	412	de		
		SQLeecure	795.1s						
		Financial Records	658.0s						
					TOP PROGRAMS				

Figure 5: List the top logins. For a selected login, show the top waits and their trends, the top databases, the top SQL statements, the top machines, and the top programs.

EXPLORE TOP SQL STATEMENTS

With very few clicks drill-down to actionable recommendations to improve query performance.

Select the top SQL statements to drill into more detailed query information. These details include what specifically are the heaviest operators per query and what percentage of the execution time they consume.

C C C Ingel location 121 (second later		OH .		,D = O Cettificate error C	🕼 ldera Dauhboard 🛛 🛛					0 *
🖕 🕐 Reports 🕐 Idera Dauhiboard 🥥 Idera S									1.0.00	
IDERA =	SQLWorkloadAnaly	sis						universalidcar	dno O Administra	tion 👔 Help
HOME ADMINISTRATION										
TOP SQL STATEMENT	s			INSTANCE: DC-SO	2L-04 > Login: UNIVERSAL\dcardno >	STATEMENT: UPO	ATE (Deadlock	A1		
Statement	Total in DB	Executions	Defabese	< INSTANCE: DC-SC						
UPCATE (DeadlockA) set (0 - @1	414.04		17 Financial_Reco	SUMMARY		v	TOTAL IN DB T	SENDING.		~
UPDATE (Deadlockii) set (i) = @1 SELECT from sys.extended_properties whe	226.0s		188 Financial_Reco 1 Financial_Reco	Avg. Time: Executions: Total in DB	7.1s Physical Reads: 97 Logical reads: 414.0s Recomplex:	8 292 0	400.0			Internal Mart
				Total III Co.	414.04 Pacampies		305.0s			Look Week Tumpelo IO Heak OS Heak
				FINDING S AND NEXT STEP Rank Finding or Action	\$	~	200.04			Using DPU 10 Week
				Heavy Operator I The operator is responsible Operator: Table Update Object: DeadlockA	Detected for 75.27% of the actual SQL statement execution	i time.	0	22:10 23:00		Retwork 10 Haat Remote Haat CLR Haat
				D. Hanna Countries		xamine Operator	TOP ACCESSED			~
				Heavy Operator I The operator is responsible Operator: Table Scan Object: DeadlockA	for 24.72% of the actual SQL statement execution	time.	Object DeadlockA		fotal in DB v Data 628.0s	dase ancial_Records
				Colors Considered		xamine Operator	TOP MACHINES			~
					10 Me	e Execution Plan	Machine dc-sd-81	Program	Total in DB v	Executions 97
				SGE STATEMENT FUEL TE TPOATE (Dewdlorkk) set (1) - 01	XT	۷				
= L a 🗃 🙆										Re 10 4

Figure 6: List the top SQL statements. For a selected SQL statement, view its performance summary, any findings (such as heavy operators) and next steps, the full text of the SQL statement, the trend of the waits, the top accessed objects, and the top machines.

EXPLORE TOP SQL STATEMENTS

With very few clicks drill-down to query execution plans.

Break down the execution plan to show the specific components and the associated cost to performance. View heavily nested SQL statements with many factors contributing to the overall performance.

	△							🖪 universalidcardno 🔹 Administration 🛐
E ADMINI	ISTRATION							
ENTE?								
	INSTANCE: DC-SQL-04 > Login: UNIT	VERSAL\dca	rdno > ST	ATEM	IENT:	SELECT	f from sys	
	EXECUTION PLAN							SQL STATEMENT FULL TEXT
				CPU	ю	Returned	Table	SELECT SCHEDG_NAME (udf.schema_id) A3 (Schema), udf.name A3 (Name), udf.object_id A3 (ID), (
	Operator name	Object Name	Cost				Cardinality Warnings Parallel	Case
	- Actual Execution Plan as of 2016-10-06 04:00.		0.956897	0.19	0.17	508.881	0	when 'TN' = udf.type then 1
	(e) Sat		0.018500	0.01	0.01	508.881	0	when 'f5' = udf.type then 1 when 'lf' = udf.type then 3
	Compute Scalar		0.000051	0.00	0.00	508.881	0	when 'IF' = udf.type then 2
	Nested Loops - Left Outer Join		0.002330	0.00	0.00	508.881	0	when 'FT' = udf.type then 2
	G Hash Match - Right Outer Join		0.023491				0	else 0
	Clustered Index Seek	clut	0.003302	0.00	0.00	18.5714	20	end) AS (FunctionType),
	 Compute Scalar 		0.000051	0.00	0.00	508.881	0	CASE WHEN GAI.type IN ('FN','IF','IF') THEN 1
	Hash Match - Right Outer Join		0.023491			508.881	0	WHEN udf.type IN ('FS', 'FT') THEN 2
	Clustered Index Seek	clut	0.003362				20	ELSE 1
	Compute Scalar		0.000051				0	END AS (ImplementationType), CAST(
	Hash Match - Right Out		0.021739				0	Case
	• Filter		0.000001		0.00	1		<pre>vben udf.is_ms_shipped = 1 then 1 vben (</pre>
	Clustered index.	chit	0.003283				1	select major_id
	© Compute Scalar © Nested Loops - L.		0.000051			508.881	0	from sys.extended properties
	C Hash Match		0.016618		0.00		0	where major_id = udf.object_id
	© False Manuel		0.000047		0.00	37	0	and minor_id = 0
	index S	2	0.003323			37	37	and class = 1
	· Nested Lo.	mux.	0.002878					and name - M'sicrosoft_database_tools_support") is not null then 1
	(in Nested		0.000434				0	else 0
	RHM		0.041101				0	end AS bit) AS (IsSystemCbject), CAST(
			0.005784			103.587	0	CASE
	0		0.000224			103.587	0	WHEN ISNULL(emudf.definition, eemudf.definition) IS NULL THEN 1
		clut	0.032415	0.00	0.03	103.587	2,242	<pre>ELSE 0 END AS bit) AS [I#Encrypted], CAST(ISBULL(OBJECTPROPERTYEE(udf.object_id, N'IsSchemaBound'),0)</pre>
			0.013183				0	AS bit) AS (Indonesgowes), CASI(IndoneSconderIndonesian(Sourcegees_ov, M. Housemannes), v) AS bit) AS (Indonesadound), usrt.mame AS (DataType), ISSULL(Baset.mame, N'') AS (SystemType),
			0.000224	0.00	0.00	2,010,21	0	CAST (
		clst	0.032415	0.00	0.03	2,010.21	2,242	CASE
			0.000010	0.00	0.00	1	0	WMEN baset.name IN (S'nchar', S'nvarchar')
			0.000329	0.00	0.00	1	0	AND ret_param.max_length <> -1 TMEN ret_param.max_length/2 ELDE ret_param.max_length
			0.091512	0.00	0.05	1	0	ESO AS int) AS (Length), CAST(ret_param.precision AS int) AS (NumericPrecision), CAST(
		chit	0.032415	0.00	0.03	2,242	2,242	ret param.scale AS int) AS (NumericScale), ISSUL(mecret param.name, N'') AS

Figure 7: For a selected SQL statement, see its execution plan and its full text.

EXPLORE TOP PROGRAMS

Pull the detail from the noisy applications into focus and drill into the impact that they had at that time.

Consolidate all of the key performance indicators.

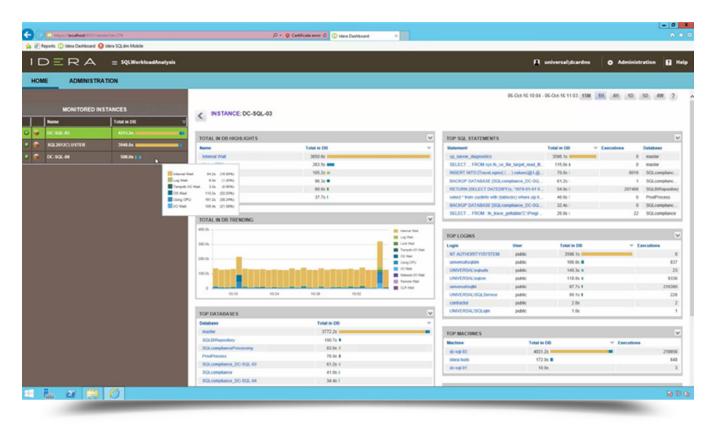


Figure 8: List the top programs. For a selected program, show the top waits and their trends, the top databases, the top SQL statements, the top logins, and the top machines.

CUSTOMIZE THE LAYOUT

From the top-level, configure the components. Manipulate panels to highlight and focus on areas of concern.

In the user interface, display prominently the items that matter most.

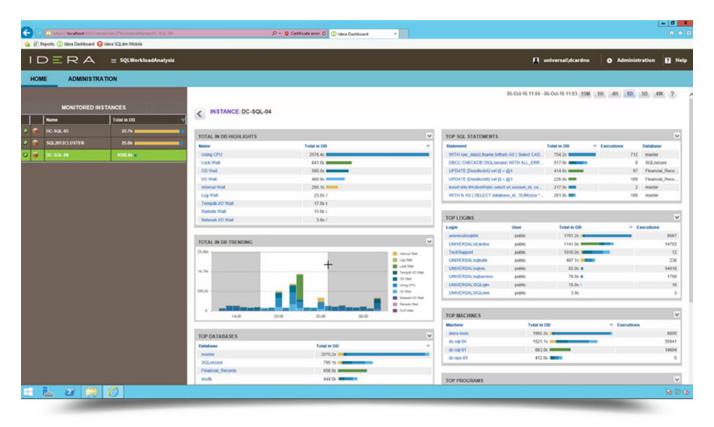


Figure 9: Customize any dashboard layout by moving, closing and opening each panel to display the most relevant information in the most convenient location.

FINAL THOUGHTS

Effortlessly manage the performance of complex SQL Server environments.

With SQL Workload Analysis, apply continuous sampling to provide a real-time view of entire databases. Quickly drill down to isolate slow SQL statements, analyze execution plans, and see automated recommendations to tune problem statements. Improve application performance with built-in recommendations, and arrive at root cause fast with the integrated operational and transactional diagnosis.



Boost the performance monitoring power of SQL Diagnostic Manager with detailed transactional application monitoring.

Comprehensive 24x7 SQL Performance Monitoring DOWNLOAD SQL DIAGNOSTIC MANAGER PRO TODAY!

Combine SQL Workload Analysis for transaction monitoring with SQL Diagnostic Manager for operation monitoring.

Start for FREE

an Turke (2) Antonio	Visit the	and the state of
	The second secon	
A moder og r Barner Hanne Hanner Hanner Ander Marko		
Automa'		
		11
and and a second s		M

 $ID \equiv RA$

IDERA.com

TWITTER twitter.com/ldera_Software FACEBOOK facebook.com/lderaSoftware LINKEDIN linkedin.com/company/idera-software 877 GO IDERA 464.3372 EMEA +44 (0) 1753 218410 APAC +61 1300 307 211 MEXICO +52 (55) 8421-7980 BRAZIL +55 (11) 3280-1159