



AimBetter Solution User Guide

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1. Opportunity

Data and information are some of any organization's most valuable assets—and database administrators (DBAs) are key guardians of those assets. The DBA's primary responsibilities have been to ensure that data is safely, securely, accurately, and appropriately stored, managed, and kept accessible to users. DBAs must ensure that organizations have the needed capacity to meet their data requirements; that databases perform at optimal levels, and provide the necessary services demanded by users. As well, security of the data, and ability to recover quickly and completely in the event of failure, are two of the most important requirements.

Whenever problems arise, DBAs are the ones called on to troubleshoot and resolve the issues effectively and efficiently. In order for DBAs to perform all of these complex tasks, a range of tools aimed at simplifying and expediting the job are offered, both by database platform providers themselves, and by software service providers.

In this sense, the world of database and application servers is saturated with monitoring products. But choosing the right one is not simply a matter of price or range of support offered. The implementation of such products in itself may cause a significant waste of your time. It requires extensive training, dedicated resources, long days and sometimes even weeks or months before any benefits can start to be seen in your organization.

- ✗ Extensive installation and integration effort on-premises (costing you resources time and expense)
- ✗ Constant need for version updates (non-productive effort)
- ✗ Need for dedicated hardware, software licenses and repository space for the monitoring system on site (which could in the end exceed the actual cost of the software package you have bought)

2. How is our solution different?

AimBetter is a total solution providing 24/7 real-time monitoring for DB and application servers in the organization designed as a SaaS in the cloud!

- ✓ Without requirement for installation - AimBetter just requires our simple agent running on a server anywhere inside your network.
- ✓ no dedicated hardware onsite
- ✓ no separate database or repository licenses
- ✓ no operating system licenses
- ✓ no impact on functionality in your own environment
- ✓ no requirement for added administration by your team

- ✓ no involvement in version updates

AimBetter does not concentrate purely on database health. Like a good doctor, AimBetter is interested in the complete picture.

- covers the whole environment
- measures storage, hardware, operating system and network metrics
- monitors all core SQL database elements
- collects data, packages and transmits it securely into our environment, then performs all analysis in the cloud
- reports via our website accessible on desktop, tablet and mobile devices with complete security.

AimBetter identifies and helps you in solving of performance issues quickly and easily.

3. Exploring AimBetter

AimBetter's agent can be installed in just minutes on any computer inside your domain. Then, as soon as data collection starts, you can begin using AimBetter to monitor your application server and SQL performance.

There are five navigation tabs on the AimBetter console:

- Alerts
- Performance
- Queries
- QAnalyser
- Observer

4. Alerts

Alerts identify the basic condition inside the SQL server that requires attention, and the range of alerts covers both pure SQL Server functions, as well as most of the supporting hardware and operating system metrics. A complete list of all the alerts, with explanations and recommendations for treatment, is available inside our [blog](#) page. There are in total more than 40 individual alert conditions.

AimBetter Alerts identifies and displays alerts from within the AimBetter solutions of all the monitored systems in a simple, clear and comprehensive dashboard. From this one starting point, all relevant screens are accessible in simple clicks in a natural drill-down flow.

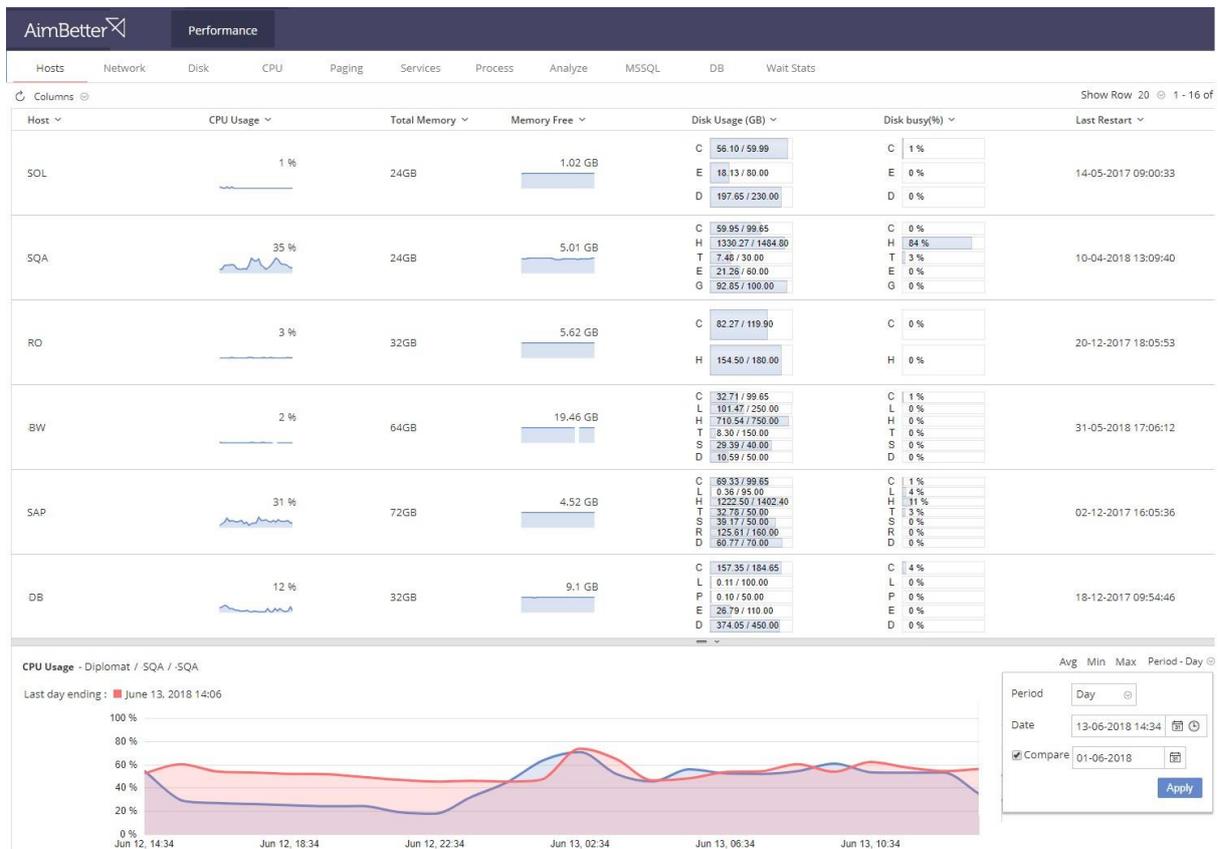


Essential capabilities

- Deviations from the critical metrics for database and operating system flagged as Alerts.
- Ability for a retrospective look at the state of the system in a different timeframe.
- Alert notifications can be distributed to specific users through push mechanisms at the time of the fault (via email, SMS, etc.)
- Threshold alert levels are set to match your own experience and expectations, with ability to set multiple levels indicating degree of urgency, through 'informative', followed by 'medium', 'important' and finally 'critical'.
- Alerts are prioritized on the dashboard in severity order to allow most critical actions first.
- One-click expansion of the SQL server will display full details of all alerts that are current on that computer.

5. Performance

AimBetter Performance analyses and centralizes critical system metrics in an easy but comprehensive display for the presentation of system integrity quickly and simply.



Essential capabilities

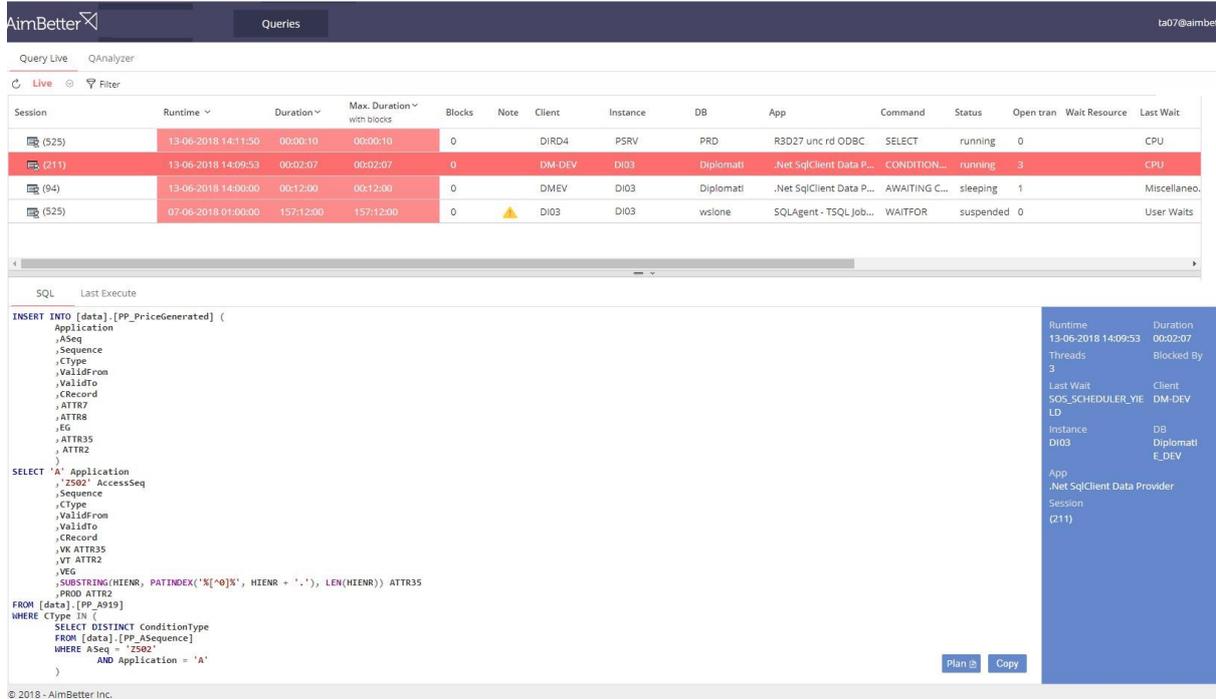
- Analysis and display of more than 300 system metrics *
- Centralized display of all the Operating System and SQL server performance metrics in one screen, regardless of where the servers are located*.
- Quick and effective identification of any application which is putting strain on the server.
- Advanced UI, with simple and direct navigation capability between the metrics.
- Ability to drill-down directly to expose underlying measurements
- One-click expansion of the performance metric will display graphical the history of that over the previous 24 hours and correlate current against historical data
- Comparison of performance according to custom choices (Days, Weeks, Avg., Min, Max etc.)

* In accordance with the chosen plan and on designated servers.

6. Queries

AimBetter Queries screen displays problematic queries in real-time, which are causing issues in response times and loads, including the performance of analysis of latches, as shown in the following tabs:

Query Live



The screenshot displays the 'Query Live' interface with a table of active queries. The table columns include Session, Runtime, Duration, Max. Duration with blocks, Blocks, Note, Client, Instance, DB, App, Command, Status, Open tran, Wait Resource, and Last Wait. Below the table, there is a section for the SQL query being executed, showing an INSERT INTO statement with various fields and a WHERE clause. A metadata panel on the right provides details such as Runtime, Duration, Threads, Blocked By, Last Wait, Client, Instance, DB, App, and Session.

Session	Runtime	Duration	Max. Duration with blocks	Blocks	Note	Client	Instance	DB	App	Command	Status	Open tran	Wait Resource	Last Wait
(525)	13-06-2018 14:11:50	00:00:10	00:00:10	0		DIRD4	PSRV	PRD	R3D27 unc rd ODBC	SELECT	running	0	CPU	
(211)	13-06-2018 14:09:53	00:02:07	00:02:07	0		DM-DEV	DI03	Diplomati	.Net SqlClient Data P...	CONDITION...	running	3	CPU	
(94)	13-06-2018 14:00:00	00:12:00	00:12:00	0		DMEV	DI03	Diplomati	.Net SqlClient Data P...	AWAITING C...	sleeping	1	Miscellaneous	
(525)	07-06-2018 01:00:00	157:12:00	157:12:00	0		DI03	DI03	wslone	SQLAgent - TSQL Job...	WAITFOR	suspended	0	User Waits	

```

INSERT INTO [data].[PP_PriceGenerated] (
    Application
    ,ASeq
    ,Sequence
    ,CType
    ,ValidFrom
    ,ValidTo
    ,CRecord
    ,ATTR2
    ,ATTR8
    ,EG
    ,ATTR35
    ,ATTR2
)
SELECT 'A' Application
    ,2502 AccessSeq
    ,Sequence
    ,CType
    ,ValidFrom
    ,ValidTo
    ,CRecord
    ,VK ATTR35
    ,VF ATTR2
    ,VEG
    ,SUBSTRING(HIENR, PATINDEX('%[0]%', HIENR + '.'), LEN(HIENR)) ATTR35
    ,PROD ATTR2
FROM [data].[PP_A019]
WHERE CType IN (
    SELECT DISTINCT ConditionType
    FROM [data].[PP_ASequence]
    WHERE ASeq = '2502'
    AND Application = 'A'
)
    
```

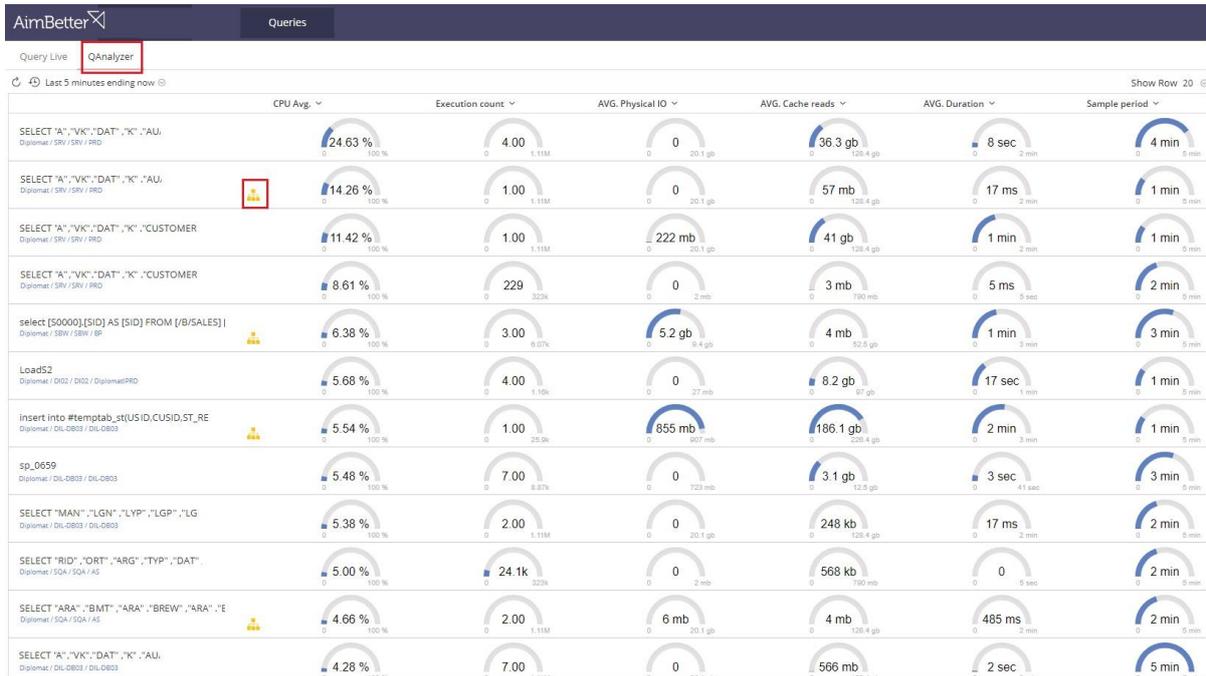
Runtime: 13-06-2018 14:09:53
 Duration: 00:02:07
 Threads: 3
 Blocked By:
 Last Wait: SOS_SCHEDULER_YE
 Client: DM-DEV
 Instance: DI03
 DB: Diplomati
 App: .Net SqlClient Data Provider
 Session: (211)

Essential capabilities

- Display of queries in real-time.
 - Fast and intelligent filtering for quick identification of the cause of the fault
 - Reports anomalies in plan being executed
 - Drill-down through faults and queries to identify any co-incident events (e.g anti-virus, snapshots, backups etc.)
 - Displays the actual query running, with ability to immediately download the execution plan.
- * History is available as defined in the chosen contract and on designated servers

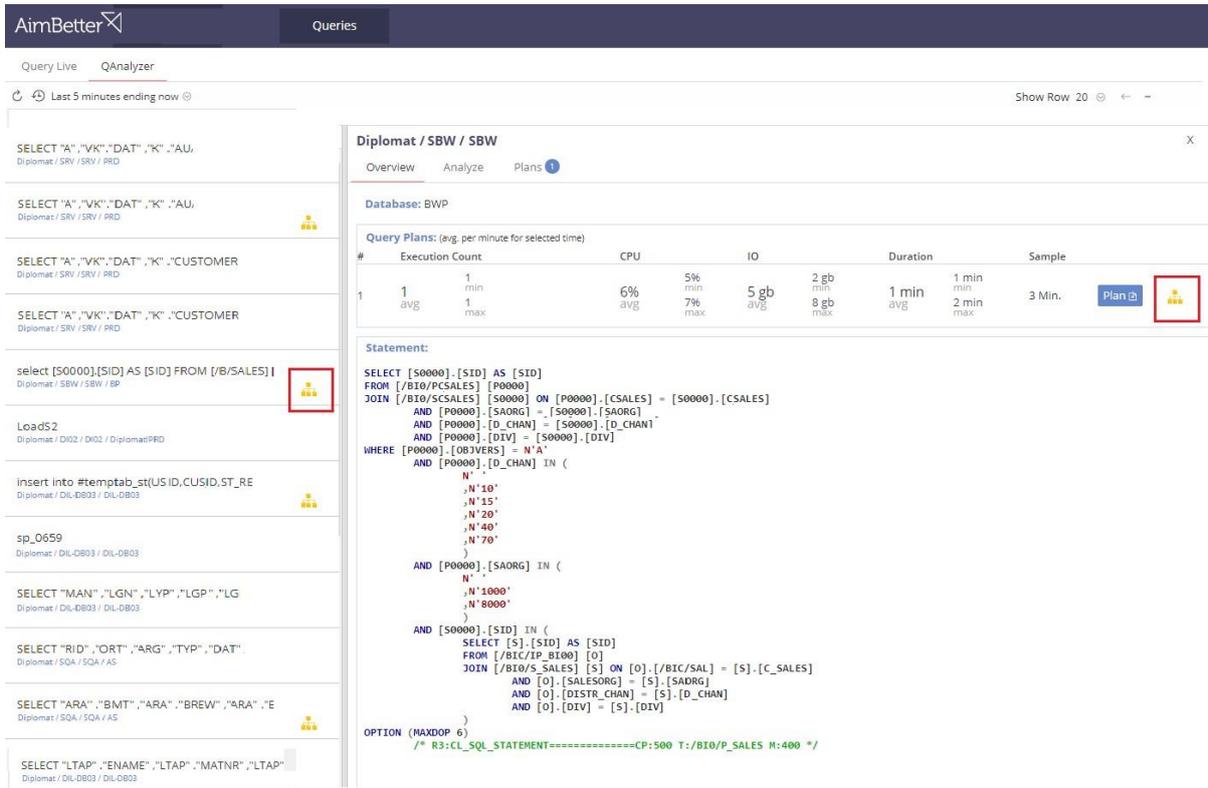
QAnalyzer

Aimbetter QAnalyzer performs analysis and displays the queries with highest of the server's processor and disk resources in real-time.



Essential capabilities

- Fast identification in real-time of processes which are causing performance and response time issues
- Intelligent filtering for quick identification of the cause of any fault
- Display of all the processes from all the servers in the organization on a single screen
- Drill-down ability of the demand for resources to the level of the individual process!
- Investigation and analysis of the SQL execution plan, with highlights of plan warnings



The screenshot shows the AimBetter QAnalyzer interface. On the left, there is a list of queries with their respective database and table information. The query 'select [S0000].[SID] AS [SID] FROM [/B/SALES] I' is highlighted with a red box. On the right, the detailed view for this query is shown, including a table of query plans, the SQL statement, and execution statistics.

#	Execution Count	CPU	IO	Duration	Sample
1	1 avg	6% avg	5 gb avg	1 min avg	3 Min.
	1 min	5% min	2 gb min	1 min	
	1 max	7% max	8 gb max	2 min	

```

Statement:
SELECT [S0000].[SID] AS [SID]
FROM [/BIO/PCSALES] [P0000]
JOIN [/BIO/SCSALES] [S0000] ON [P0000].[CSALES] = [S0000].[CSALES]
AND [P0000].[SAORG] = [S0000].[SAORG]
AND [P0000].[D_CHAN] = [S0000].[D_CHAN]
AND [P0000].[DIV] = [S0000].[DIV]
WHERE [P0000].[OBJVERS] = 'A'
AND [P0000].[D_CHAN] IN (
    'N'
    ,N'10'
    ,N'15'
    ,N'20'
    ,N'40'
    ,N'70'
)
AND [P0000].[SAORG] IN (
    'N'
    ,N'1000'
    ,N'8000'
)
AND [S0000].[SID] IN (
    SELECT [S].[SID] AS [SID]
    FROM [/BIC/IP_B100] [O]
    JOIN [/BIO/S_SALES] [S] ON [O].[BIC/SAL] = [S].[C_SALES]
    AND [O].[SALESORG] = [S].[SADRG]
    AND [O].[DISTR_CHAN] = [S].[D_CHAN]
    AND [O].[DIV] = [S].[DIV]
)
OPTION (MAXDOP 6)
/* R3:CL_SQL_STATEMENT=====CP:500 T:./BIO/P_SALES H:400 */
    
```

7. Observer

Observer analyses, catalogues, consolidates and displays critical events on the servers of the DB and the application in the organization in a simple and easy way which enables the identification of an abnormal state in the system and the correlation between faults.

AimBetter 		Observer	
Overview Event Log Deadlock DB backup			
Last 24 hours ending now			
0 significant		16 suspected	
0 minor		16 server	
0 database		16 rows	
Change Date	Server	Description	Value
13 June 2018 14: 21	Diplomat QLP	Service "QServiceConnector" state Changed suspected changed server	Current - Running Previous - Stopped
13 June 2018 14: 21	Diplomat QLP	Service "QDistributionService" state Changed suspected changed server	Current - Running Previous - Stopped
13 June 2018 14: 21	Diplomat QLP	Service "QManagementService" state Changed suspected changed server	Current - Running Previous - Stopped
13 June 2018 14: 21	Diplomat QLP	Service "QServer" state Changed suspected changed server	Current - Running Previous - Stopped
13 June 2018 14: 21	Diplomat QLP	Service "QWebserver" state Changed suspected changed server	Current - Running Previous - Stopped
13 June 2018 14: 19	Diplomat QLP	Database "PlacingBot" creation date Changed suspected changed database	Current - Stopped Previous - Stop Pending
13 June 2018 14: 19	Diplomat QLP	Software "Google Chrome" Installation date Changed suspected changed server	Current - Stopped Previous - Running
13 June 2018 14: 18	Diplomat QLP	Service "Background Runtime Service" state Changed suspected changed server	Current - Stopped Previous - Running
13 June 2018 14: 18	Diplomat QLP	Software "Google Chrome" Installation date Changed suspected changed server	Current - Stopped Previous - Running

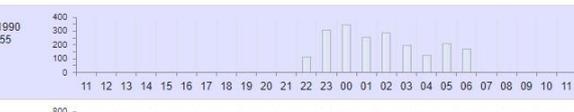
Essential capabilities

- proactive 24-hour look for the identification of developing faults.
- fast identification of login errors, duplicate keys, deadlock, running errors, backup problems in the DB server etc., including information about who is causing the problem (user, computer, application, etc.)
- analysis of the event log of the operating system for fast identification of events.
- performance of analysis for all the events in the servers over different periods on a daily, weekly and monthly level.
- statistical alerts on deviations from the metric's threshold level – trend identification and prevention of faults before they can impact performance!
- ability to investigate historical data. (History is available as defined in the chosen plan and on designated servers.)

AimBetter Performance Queries **Observer** Alerts

Overview Event Log Deadlock DB backup

Last 24 Hours ending now Filter Show Row 20 1 - 20 of 95

Company	Category	Instance	Event Ratio	Events
Ion	SQL Exception	SQL13	<div style="display: flex; justify-content: space-between;"> Current: 1990 Other: 3455 </div> 	
			<div style="display: flex; justify-content: space-between;"> Current: 1664 Other: 3781 </div> 	

EVENT LOG - Ion / SQL13 / SQL Exception

Log Analyze

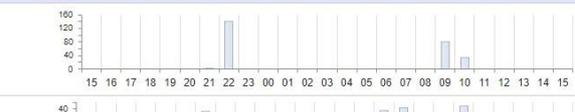
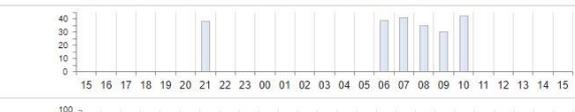
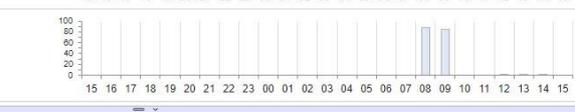
Runtime	Error Source	Message	Repeat
29-05-2018 06:15:00	monddata01	XML parsing: line 1, character 36440, '>' expected	1
29-05-2018 06:15:00	monddata03	Insert bulk failed due to a schema change of the target table.	7
29-05-2018 06:15:00	monddata11	Insert bulk failed due to a schema change of the target table.	7
29-05-2018 06:14:00	monddata01	XML parsing: An unexpected error has occurred in the XML parser.	1
29-05-2018 06:10:00	monddata01	Insert bulk failed due to a schema change of the target table.	19
29-05-2018 06:10:00	monddata05	Insert bulk failed due to a schema change of the target table.	19
29-05-2018 06:10:00	monddata06	Insert bulk failed due to a schema change of the target table.	19
29-05-2018 06:05:00	monddata01	Insert bulk failed due to a schema change of the target table.	17
29-05-2018 06:05:00	monddata06	Insert bulk failed due to a schema change of the target table.	17
29-05-2018 06:05:00	monddata09	Insert bulk failed due to a schema change of the target table.	17

The Observer can display all entries in the event log relating to queries, and present a graphic timeline of these activities.

AimBetter Observer

Overview Event Log Deadlock DB backup

Last 24 Hours ending now Filter Show Row 20 1 - 20 of 235

Company	Category	Instance	Event Ratio	Events
Aon	SQL Server Windows Event	AonERP	<div style="display: flex; justify-content: space-between;"> Current: 796 Other: 0 </div> 	
Aon	SQL Timeout Exception	AonERP\PRI	<div style="display: flex; justify-content: space-between;"> Current: 259 Other: 15546 </div> 	
Aon	Database backup failed on dis...	AonERP\PRI	<div style="display: flex; justify-content: space-between;"> Current: 225 Other: 15580 </div> 	
SQL ce	SQL Timeout Exception	V-SAP-01 - sql	<div style="display: flex; justify-content: space-between;"> Current: 176 Other: 13639 </div> 	

EVENT LOG - Aon / AonERP / SQL Server Windows Event

Log Analyze

Runtime	Source	Message	Category	User	Error number	Repeat
13-06-2018 10:45:00	SQLVDI	SQLVDI: Loc=SignalAbort. Desc=Client initiates abort. ErrorCode=(0). P...	SQL Server Windows Event		1	145
13-06-2018 09:45:00	SQLVDI	SQLVDI: Loc=SignalAbort. Desc=Client initiates abort. ErrorCode=(0). P...	SQL Server Windows Event		1	112
13-06-2018 08:45:00	SQLVDI	SQLVDI: Loc=SignalAbort. Desc=Client initiates abort. ErrorCode=(0). P...	SQL Server Windows Event		1	112
13-06-2018 07:45:00	SQLVDI	SQLVDI: Loc=SignalAbort. Desc=Client initiates abort. ErrorCode=(0). P...	SQL Server Windows Event		1	136

8. Appendix

Performance metrics

Metric	Description of metric	Importance
Hosts		
CPU Usage	The level in percentage of processor usage	A high percentage indicates that a program or process needs a large amount of processor resources, a situation which could lead to slow response times in the system.
Total memory	The amount of physical memory present in the system in GB	
Memory free	The amount of physical memory free in the system in GB	A low quantity of free memory indicates that processes or programs are drawing on more memory. This situation can give cause slow response times. You should check which elements are using most of memory.
Disk Usage	Usage of the(disk) storage space in GB.	A usage as high as 95% of the storage space can lead to a loss of information and the integrity of the programs and processes in the system.
Disk Busy	The level in percentage of the traffic (reading and writing) of the (disk) storage	A high usage indicates that programs or processes are performing a large amount of reading and writing, a situation which can cause slow response times in the system.
Last Restart	The time of the last restart of the system	
Ping Lost Packets (012)	The quantity of unsuccessful communication integrity checks out of 12 attempts	A large number of failures indicates problems with communication in the network where the system is located.
Network Jitter	Fluctuations in the time of all 12 communication integrity checks.	A changing response time indicates communication problems in the network, an irregular rate of data transfer.
Network Latency	The response	A high response time delays in the transfer of information in the network.
OS	The name of the operating system	

SP	The update version of the operating system	
CPU Cores	The number of cores of the processor in the system	
CPU Queue Length	The number of processes waiting for the processor	Multiple waiting processes can indicate slow response times in the system.
Mem Page Read	The reading time of information from the storage to the physical memory	A high reading time implies that the size of the present memory is insufficient for the system, and can cause slow response times in the functioning of the system.
Paging Used	The amount of usage of the page file which is found in the (disk) storage of the computer which serves to aid the physical memory in the system if there is need for additional memory	When the usage is high, an enlargement of the physical memory should be considered.
Total Disk IO	The amount of traffic (reading and writing) from the (disk) storage of the system per second	An amount which is larger than normal indicates that there is a process or program which is causing high I/O activity.
Network		
Card Name	The name of the sampled network card	
Bandwidth	The bandwidth which the network card supports, the amount of information which can be transferred through the card in GB.	There are situations where the bandwidth is not determined in the optimal manner, for example the card supports 1GB but is set at 100MB.
Network utilization	The percentage utilization of the network card	A percentage higher than 30% indicates extensive transfer of data. This situation will cause delays in the transfer of data between systems and different programs in the network.
Receive Kbyte / sec	The amount of information received by the server through the network card in kilobytes per second	A high measurement indicates that the server is receiving large amounts of data. When the system is slow you should check whether this metric is correspondingly high.
Send Kbyte / sec	The amount of information sent from the server through the network card in kilobytes per second	A high measurement indicates that the server is sending large amounts of data. When the system is slow you should check whether this metric is correspondingly high.
Disk		

Disk Usage (GB)	The usage of the (disk) storage in GB.	A usage as high as 95% of the storage space can lead to a loss of information and the integrity of the data and processes in the system.
Free Space	The free (disk) storage space in GB	Low free storage space can lead to loss of information and the integrity of the data and processes in the system.
Busy Time	The level in percentage of the usage reads and writes) of the (disk) storage	A high usage indicates that programs or processes are performing a large number of reads and writes, a situation which can cause slow response times in the system.
Write /R (ms)	The amount of time reading takes the (disk) storage in milliseconds	A writing time higher than 1 millisecond indicates a load on the (disk) storage or a lack of integrity.
Read /R (ms)	The amount of time writing takes the (disk) storage in milliseconds	A reading time higher than 1 millisecond indicates a load on the (disk) storage or a lack of integrity.
IO(sec)	The number of reads and writes to and from the (disk) storage per second	In a situation where the number of reads and writes is high, system responses can be slow
IO Write /sec	The number of writes to the (disk) storage per second	In a situation where the number of writes is high, system responses can be slow
IO Read /sec	The number of reads from the (disk) storage per second	In a situation where the number of reads is high, system responses can be slow
Paging		
Page files	The page file path which forms the virtual memory in the (disk) storage on the computer	
Used	The number of usages of the page file which is found in the (disk) storage of the computer, which serves to aid the physical memory in the system if there is need for additional memory	When the usage is high, an enlargement of the physical memory should be considered
Max	If the page file (virtual memory) has been manually determined, this metric indicates the maximum storage space assigned to the page file (virtual memory).	
Init	If the page file (virtual memory) has been manually determined, this metric indicates the initial storage space assigned to the page file (virtual memory).	

Manage type	How the page file (virtual memory) has been defined, manually or automatically.	
Allocated	The physical size currently assigned to the page file (virtual memory) within the (disk) storage space	
Services		
Name	The name of the service	
Display Name	The display name of the service	
State	The status of the service (running, starting, stopping, stopped, etc.)	
Mode	The mode of operation of the service, manual, automatic or cancelled.	
Account	The level of authorization with which the service is working	
Path	The location of the executable file of the service	
Running	The running status of the service, 0 down, 1 up.	
Process		
User Name	The name of the user running the process	
Process Name	The name of the running process	
CPU	The percentage level of the process's usage of the processor	A high percentage indicates that this process needs a large number of processor resources, a situation which can lead to slow response times in the whole system.
Memory	The number of physical memory utilized by the process in MB	A large number of memory needed indicates that this process is utilizing a large amount of memory which can lead to slow response times of processes and other programs in the system.

Page Files	The amount of page file (virtual memory) being used by the process in MB	A large amount used by the process can be evidence of a problem with the physical memory.
Virtual Memory	The process's amount of physical memory and page file (virtual memory)	
Reads	The process's number of reads from the physical memory	
Writes	The process's number of writes to the physical memory	
Process ID	A number which identifies the process in the system	
Command Line	The running command of the executable file which the process is running	Includes parameters
Last initialization	The time at which the process was initiated	
Path	The path of the executable file	
MSSQL		
Version	The version of the SQL installed on the server	
Instance	The name of the installation of the SQL server	
Test connection	A time check of establish a connection to the SQL server in milliseconds	When the time to establish a connection is large, this situation indicates communication problems in the network or a load on the SQL server.
Last Restart	The last restart which was done for the SQL server	
Collation	The language and manner of string comparison defined by the SQL server	
Edition	The installed edition of the version of the SQL	There are a number of editions, and each edition has two runtimes – 32 and 64 bit, e.g.: Express, Developer, Enterprise, etc.
SP	The update version of the SQL	

Page life expectancy	The duration of time which the SQL keeps the retrieved information which is found in the physical memory of the service, measured in seconds.	A short time, such as 300 seconds, for the saving of the information in the memory indicates a situation in which the SQL needs more physical memory because it is exchanging the information which arrives from the physical memory at a high frequency, something which causes slow response times in the reception of data from the SQL.
User Connections	The number of users in the SQL	A large number can indicate a load on the system, a fault or security error
Connection reuse/sec	Number of connections reused per second	Measures count of applications which close reader and exit - connection can be reused for other operations / close connection.
Batch requests	The number of update, retrieval, or deletion or saving operations in the SQL per second.	This metric enables you to track over time in order to point to abnormality in the number of operations in the SQL server.
Buffer cache hit ratio	The percentage usage of the information which is found in the physical memory of the SQL server	When the percentage usage is below 90%, it creates a situation of multiple reads and writes to the (disk) storage. You should investigate whether there is a high consumption of the physical memory by different programs or processes, or whether it is necessary to add additional physical memory to the SQL server.
Page reads	The number of page reads (each page is 8KB) from the (disk) storage per second.	A large number of reads indicates that you should examine the integrity and the indexing and logic of the system queries for information in the SQL server.
Page writes	The number of page writes (each page is 8KB) from the (disk) storage per second.	A large number of writes indicates that you should examine the integrity and the indexing and logic of the system queries for information in the SQL server.
Compilation	The number of times that the SQL compiles the running programs of the queries per second	A large number of running program compilations together with a low number of the batch requests metric indicates a large usage of direct queries, sp execute sql and no procedures with determined variables.
Recompilation	The number of times the SQL recompiles the running programs of the queries per second	A large s of running program recompilation together with a low number of the batch requests metric indicates that the amount of information which the request retrieves has grown, a statistical update has been performed, or the indexing has been recompiled. First you should investigate the amount of information, and afterwards investigate whether the other operations have been performed.

Page Lookups	The number of times the SQL seeks pages (the size of each page is 8KB) from the physical memory.	(Page lookups/sec) / (Batch requests/sec greater than 100) > 100. There are queries which are not running optimally.
Latches Times	The number of latches of tables per second for the purpose of updating or deletion.	A high number of latches causes slow response times in the reception of data from the latched tables. You should investigate a change in the method of update or deletion.
Page Splits	The number of pages splitting for the purpose of allocation in the event that the index does not have space at the frequency of one second	An number higher than 20 per second necessitates a check of the specifications of the index.
Checkpoint Pages	The number of the updates of pages (the size of a page is 8KB) of information from the physical memory to the (disk) storage per second	When there is a large number of updates per second, you should investigate the addition of physical memory to the system or the reduction of the recovery interval in the specifications of the SQL.
DB IO	The number of reads and writes of the entire database	
Target Memory	The amount of memory which the SQL requests to assign to it for normal functioning.	
Memory	The amount of memory which the SQL is utilizing	If the SQL is not using the maximum specified amount of memory, you should consider lowering this amount.
Memory Details	A description of the division of the physical memory usage of the SQL for the database, internal needs and free memory in MB	
SQL Memory	The amount of physical memory which the SQL is utilizing in MB	
Free Memory	The amount of physical memory which the SQL is not utilizing in MB	When the metric is high there is the possibility of taking out the physical memory assigned to the server.
Internal Memory	The amount of physical memory which the SQL is utilizing for internal operations, not including operations for the database, in MB	A large amount indicates that a large usage of time objects (parameters, tables, indexes etc.). Improvement should be considered.
Memory (min)	The minimum amount of assigned physical memory which the SQL can use in MB	
Memory(max)	The maximum amount of assigned physical memory which the SQL can use in MB	

DB		
Status	The status of the database	<ul style="list-style-type: none"> • Online – the database is available • Offline – the database is not in use • Mirror Disconnect – the sync is disconnected. • Mirror Principal – the principal sync of all updating of the database. • Mirror – the database is synchronized. • Restoring – the database is currently being restored • Suspect – the database is defective
Instance	The name of the installation of the SQL server in which the database is found	
Database	The name of the database	
Recovery	The type of backup and restore specified for the database (Simple, full or bulk logged).	For more details search for “choosing the recovery model for a database” in Google.
Full Backup	The date of the last full backup which was performed on the database.	A full backup once per day is recommended
Log Backup	The date of the last backup of log changes which was performed on the database	A log backup once per hour is recommended
Collation	The language and the manner of string comparison specified for the database	
Compatibility	The version of the compiler at the level of the database	Incompatibility between the version of the server and the database requires investigation.
Diff Backup	The date of the last partial backup which was performed for the database	A partial backup once a day is recommended
Transactions / sec	The number of transaction operations which began per second	A large number of transaction operations indicates high activity – lower is better
Log Flush	The time which it takes to save the log which is found in the physical memory to the (disk) storage	When the time it takes to save the log from the memory is long this is a situation in which operations of transaction, update and saving to the SQL take a long time
IO	The number of read and write operations from the (disk) storage at the sampled time.	A very large number of reads and writes can cause slow response times as a result of a load on the (disk) storage

Lazy Writes/sec	Number of time pages flush from memory to disk.	Data save on LDF file Move to MDF/NDF File. High value can indicate low memory.
Index full scans/sec	Number of unrestricted full scans per second	Lower is better.
Index page splits / sec	Number of page splits per second that occur as the result of overflowing index pages.	Lower is better.
Logins/sec	Total number of logins started per second.	Should be constant or only changing slowly.
Logouts/sec	Total number of logout operations started per second.	Should be constant or only changing slowly.
Log size	The size assigned to the log files in MB	
Log Use	The size of the log used in MB	
Cores Available	The number of server core that available for use by the sql engine.	
Cores In Use	The number of cores that currently in use by the sql engine.	
Creation date	The date of the creation of the database	
Data Files	The number of files the database consists of	
Data Read IO	The number of reads from the (disk) storage	
Data Write IO	The number of writes from the (disk) storage	
Session CPU wait	Display the number of sessions that waiting for CPU resource.	Should be 0.
Session Memory wait	The number of sessions that waiting to be granted workspace in memory.	This indicates that in your server there are processes which are waiting for memory to be assigned. Should be 0.

Create temp table / variables	The time in sec. that temporary table / variables wait to create.	
TempDB free space	The amount of free space at tempDB data file in KB.	There must be enough free space to hold all new temporary objects created in this instance of SQL. Higher is better.
Open Transactions	The number of open transactions	
Log Use transaction	The size of use transactions at the log file in MB.	
Transaction duration	The duration of the transaction in sec.	
AlwaysOn state	Notifies what the sync DB status is.	Unsynchronized / synchronizing mode /Synchronized
AlwaysOn health	Notifies when a database is no longer in the online status.	2 options available : HEALTHY \ NOT HEALTHY
AlwaysOn graph	The status of the cluster replication - can be useful to pinpoint the time point when synchronization mode changes, as a way to investigate causes of any problems.	0 – Unsynchronized 0.5 - synchronizing mode 1 - Synchronized
AlwaysOn Log records not committed at Secondary	Total shows the number of logs that currently remain to be applied to the AlwaysOn database to roll it forward.	Indicates of status of queues on the AlwaysOn server.
AlwaysOn log records waiting to send to Secondary	Total shows the number of logs that have not yet been sent to the AlwaysOn server.	Indicates of status of communications between servers.
AlwaysOn mode	The role of each node in a cluster. Can be 'Primary' or 'Secondary'.	Only relevant for AlwaysOn replication.
AlwaysOn Group Name	The name of a set of databases on the server that are synchronized in AlwaysOn.	Can see the group's name
Mirror status	Shows the wait state. Important in understanding growth in mirror queues.	Unsynchronized / synchronizing mode /Synchronized

Mirror status graph	Shows the wait state. Important in understanding growth in mirror queues. 0 – Unsynchronized 0.5-SYNCHRONIZING/ASYNCHRONIC 1- Synchronized	0 – Unsynchronized - no connection, or server is paused 0.5-SYNCHRONIZING/ASYNCHRONIC - depends on mirror type. Cannot do failover until all log records are written. 1- Synchronized - no log records waiting, failover will be performed without waits.
Mirror mode	The role of each. Can be 'PRINCIPAL' or 'MIRROR'.	Only relevant for database mirror
Mirror Log records not committed at Secondary	Total show the number of logs that currently remain to be applied to the mirror database to roll it forward.	Indicates of status of queues on the mirror server.
Mirror log records waiting to send to Secondary	Total show the number of logs that have not yet been sent to the mirror server.	Indicates of status of communications between servers.
Data Drive	Indicates the physical drive containing the DB files.	
Log Drive	Indicates the physical drive containing the log file.	
File stream drive	Indicates the physical drive containing the FILESTREAM for unstructured data	
Open Transactions	The number of open transactions	

Alerts

Metric	Default Levels of Alert				Description
		Low	Medium	Critical	
CPU usage	Above	50%	60%	70%	A high percentage indicates that a program or process needs a large amount of processor resources, a situation which can cause slowness in the system.
CPU Core	Above	50%	60%	70%	A high percentage indicates that a program or process needs a large amount of processor resources –need to see if the CPU distribution well.
Memory Free	Below	0.5 GB	1 GB	1.5 GB	A low amount of free memory indicates that processes or programs are drawing more memory. This situation can be evidence of slowness in the system. You should investigate who is using a lot of memory.
Memory Free Percentage	Below			10%	A low amount of free memory indicates that processes or programs are drawing more memory. This situation can be evidence of slowness in the system. You should investigate who is using a lot of memory.
Paging Used	Above	2000 MB	4000 MB	6000 MB	When the usage is high, you should consider an enlargement of the physical memory.
Lost Packets Using Ping	Above or equal to	1	3	4	A large number of failures indicates communication problems in the network in which the system is found.
Network utilization	Above	30%	50%	80%	A percentage higher than 30% indicates a large amount of data transfer. This situation will cause slowness in the transfer of data between different systems and programs in the network.
Disk available space	Above	7 GB	5 GB	2 GB	Low free storage space can lead to a loss of information and the integrity of the programs and processes in the system.
Disk available percentage	Above			10%	Low free storage space can lead to a loss of information and the integrity of the programs and processes in the system.
Disk busy time	Above	60%	70%	90%	A high percentage indicates that programs or processes are performing

					many reads or writes, a situation which can cause slowness in the system.
SQL Batch Request					The number of update, insert, delete or read operations performed in SQL per second.
Process CPU	Above	50%	70%	90%	A high percentage indicates that this process needs a large amount of processor resources, a situation which can lead to slowness in the entire system.
Process memory	Above	100 MB	200 MB	500 MB	A large amount of needed memory indicates that this process is utilizing a large amount of memory, which can lead to slowness of other processes and programs in the system.
Process Running	Equal to	0			An alert concerning the stopping of the operations of a process in the system.
Service Running	Equal to	0			An alert concerning the stopping of service operations in the system.
SQL Connection Problem	Above	500 MS	1000 MS	2000 MS	A long time to establish a connection indicates a situation where there are communication problems in the network or a load on the SQL server.
SQL User Connections	Above	400			The number of connections that made connecting to the sql.
Page Life Expectancy	Above or equal to	500 sec	30 0sec		A short saving time for the information in the memory indicates a situation in which the SQL needs more physical memory because it is exchanging the information arriving from the physical memory at a high frequency, which leads to slowness in the reception of data from the SQL.
SQL Deadlock	Above or equal to	3	5	10	A large amount of deadlock situations indicates that there are many processes which are not ending.
Buffer Cache Hit Ratio		90%	85%		When the percentage usage is below 90% it creates a situation of multiple reads and writes from the (disk) storage. You should investigate whether there is a high consumption of the physical memory by different programs or

					processes, or whether it is necessary to add additional physical memory to the SQL server.
Log backup	Log backup	60 Min	180 Min	1440 Min	A log backup at a frequency of an hour lowers the risk of information loss down to an hour when there is a fault.
Full backup	Full backup			1500 Min	A full backup at the frequency of a day lowers the risk of information loss when there is a fault.
Full Backup (.bak or Snapshot)	Full Backup			1500 Min	A full backup – reference to any kind of full backup – SQL backup (.bak file) / snapshot/ veem or any kind of other backup. At the frequency of a day lowers the risk of information loss when there is a fault.
Differential backup	Differential backup			1500 Min	The backup of information from the full to the present backup point at the frequency of a day
Log/Data percentage	Log/Data percentage	50%	60%	80%	When the log catches above 60% of the database size there is a problem. You should check the integrity of the processes for this database, such as transactions (containing recursion), and backups.
Login failed for user	Above or equal to	30	60	100	A large number of failed logins can be evidence of a security issue.
SQL job failed	Above or equal to			1	The dropping of a SQL process can cause disruption of the system integrity.
SQL job cancelled	Above or equal to			1	The cancelling of a SQL process can cause a disruption of the system integrity.
Disk Write Response	Above or equal to		8 MS		An alert means your threshold has been passed, indicates unexpected behaviour and needs to be investigated.
Disk Read Response	Above or equal to		8 MS		An alert means your threshold has been passed, indicates unexpected behaviour and needs to be investigated.
Network Latency	Above or equal to	20 MS	50 MS		This alert means that the network traffic is taking longer times to complete.
Network Jitter	Above or equal to	20 MS	50 MS		This alert means that the network cannot keep up with the traffic demand at the rate that the programs demand

Log Growth	Above or equal to	50000 MB			Log file size is highly dependent on level of activity, on database backup being performed correctly.
Data Growth	Above or equal to	1000000 MB			Data file size is highly dependent on level of activity, on database backup being performed correctly.
Queries blocking	Above or equal to			1H	Blocking caused by locks on database objects are a common issue.
Queries open transaction	Above or equal to			5M	A transaction is not committed and not rolled back, remains idle and is using resources that could have been freed up for other processes. SQL functions are running slower, affecting user response times and degrading performance.
Queries running long	Above or equal to			5M	Queries are running longer than expected.

Exceptions

Convert Exception	conversion between different data types (string to number, string to date) can fail
Duplicate Key Exception	SQL Server cannot insert a duplicate key in a table designated as having unique index of the key field.
Foreign Key Exception	Means that a new key being inserted/updated in the parent table does not also appear in another table that is designated as the child.
Null Exception	Reported if an INSERT or UPDATE command is trying to add a NULL value into a table/column where the definition of the column does not allow NULL value.
Overflow Exception	Doing arithmetic conversions between data types can result in overflow
Permission Violation	Can occur when executing stored procedures if permission has not been granted for the user.
Parameter Exception	May occur if the parameter count in a command (INSERT/UPDATE) does not match the values supplied.
Table corrupted	SQL Server may report that a table cannot be accessed.