Aimbetter Solution

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Contents

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1. Opportunity

The world of DB and application servers is saturated with monitoring products.

The implementation of such products causes in itself a waste of precious time and many resources, long days and sometimes even weeks and months until the product is completely implemented in the organization.

- ✖ Long and tiring installation and integration on-premises (time = money)
- ✖ Lots of involvement with version updates (waste of time = money)
- ✖ Establishment of designated servers and storage space for the monitoring system on-premises (= money!)

2. Our solution

Aimbetter is an inclusive solution for real-time monitoring 24/7 for DB and application servers in the organization in the cloud!

- ✓ Without involvement in installations
- ✓ Without involvement in version updates
- ✓ Without dedicated servers
- ✓ Identification and solving of performance issues quickly and easily
- ✓ Introduction of a monitoring server in seconds

3. Exploring Aimbetter

Once data starts arriving, you can begin using Aimbetter to monitor your application server and SQL performance.

There are four tabs navigation in Aimbetter:

1. Performance Tab
2. Queries
3. Observer
4. Alerts

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4. AimBetter Performance

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

Essential capabilities

- Analysis and display of above 300 system metrics - Aimbetter Performance – Metrics*

- Centralized display of all the WINDOWS and SQL servers in one screen, regardless of where the servers are located*.

- Quick and effective identification of an application, which is putting strain on the server.

- Terrific user experience and simple and easy navigation capability between the metrics.

- Historical graphic drill *

- Comparison of performance according to custom choices (Days, Weeks, Avg., Min, Max etc.)
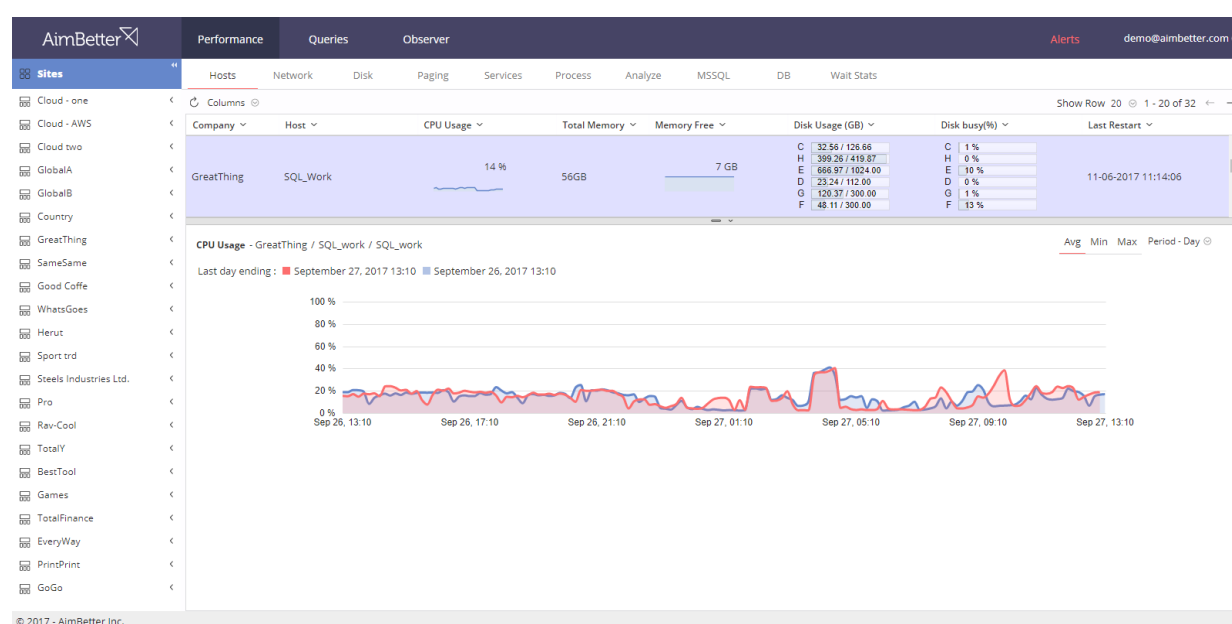
* In accordance with the chosen plan and the sampled server.

5. Queries

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

Query Live

Essential capabilities

- Unified and central screen for all the organization's databases
- Quick identification of the user, computer, resource, processor, memory or TEMPDB which is causing the fault.
- Capable of keeping the history up to a year back.
- Display of queries in real-time.
- Fast and intelligent filtering for quick identification of the cause of the fault
- Drill history faults and queries

* In accordance with the chosen plan and the sampled server.

QAnalyzer

Aimbetter QAnalazyer performs analysis and displays the queries which need most of the server's processor and disk resources in real-time.
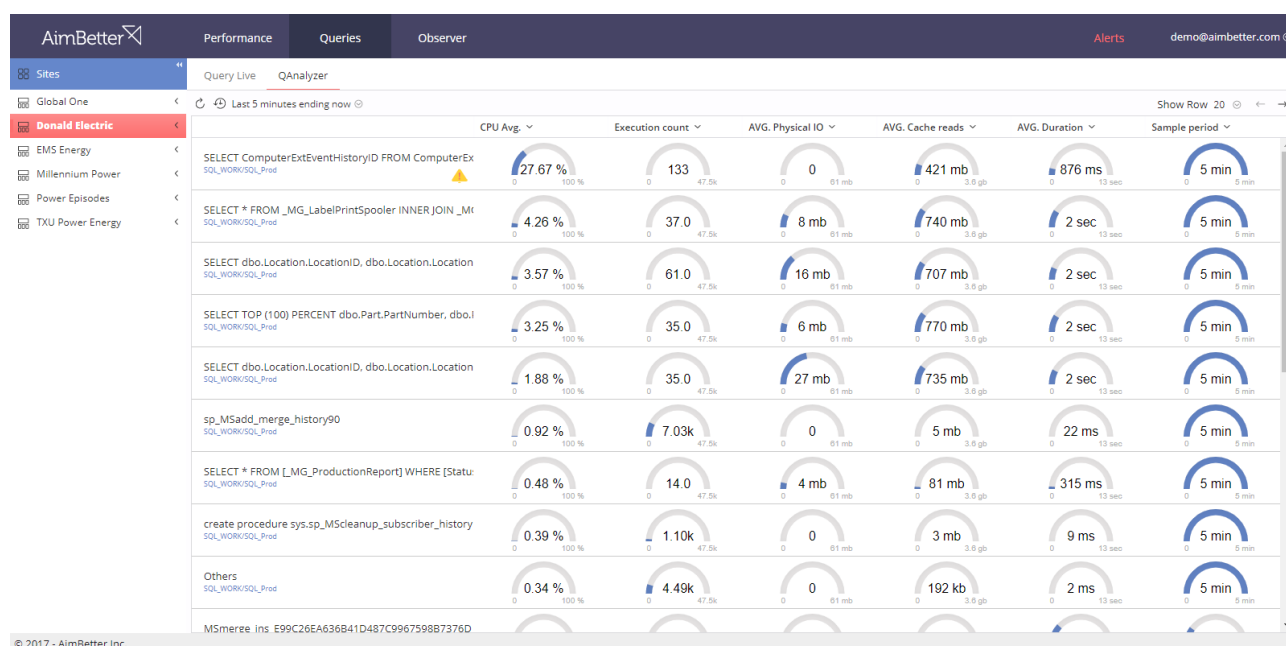
Essential capabilities

- Fast identification in real-time of processes which are causing performance and response time issues

- Fast and intelligent filtering for quick identification of the cause of the fault

- Unified screen for all the processes from all the servers in the organization

- Display of the demand for resources at the level of the individual process!

- Investigation and analysis of the execution plan
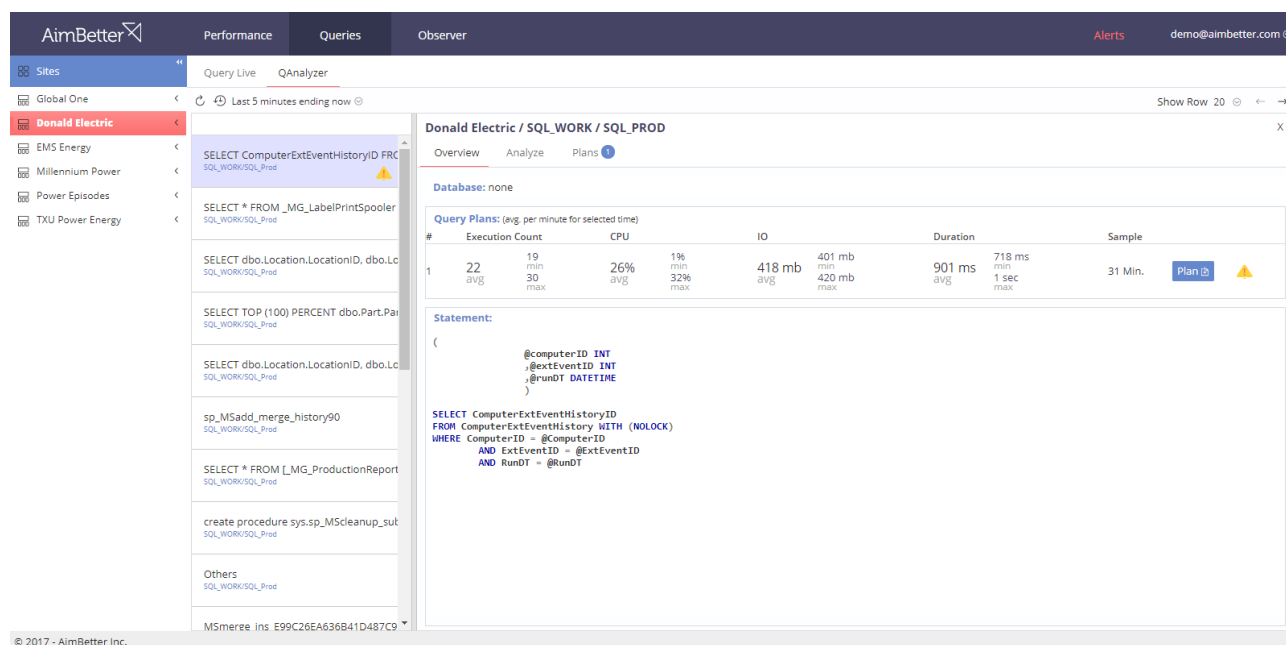
* In accordance with the chosen path and the sampled server.

6. Observer

Observer analyzes, catalogues, centralizes and displays critical events in 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.
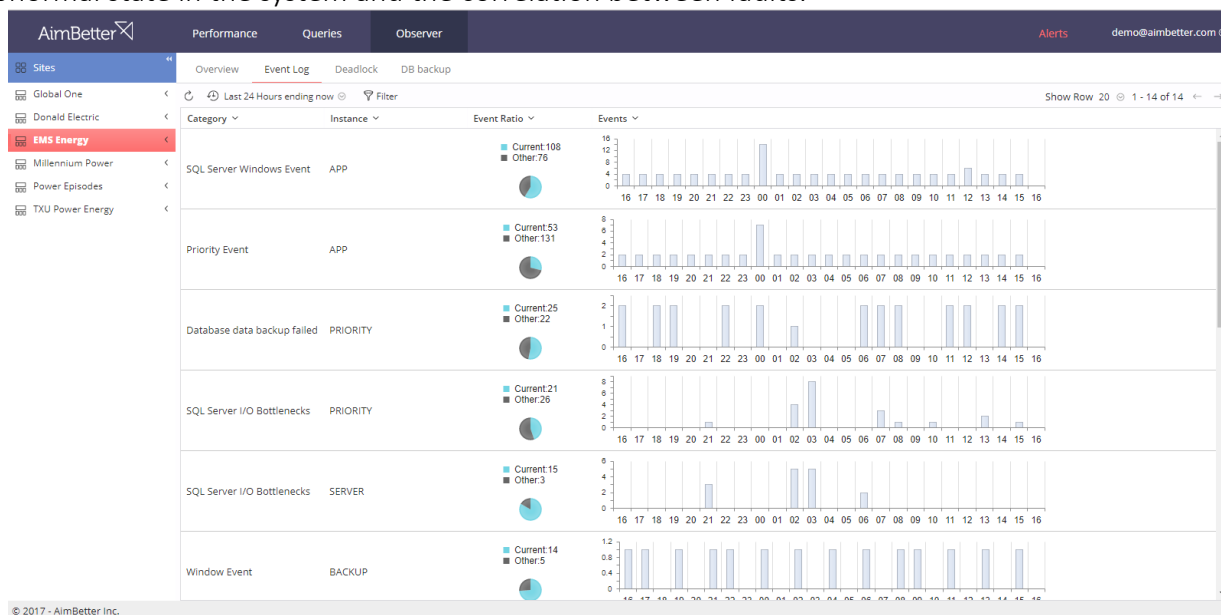
Essential capabilities

- 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.)*.

- Performance of analysis for the event log of the operating system for fast identification of events.

- Performance of analysis for all the events in the servers according different periods on a daily, weekly and monthly level.

- Proactive identification and treatment – statistical alerts on changes from the metric's norm – trend identification and prevention of faults before they begin!

- Capable of investigating historical data*.
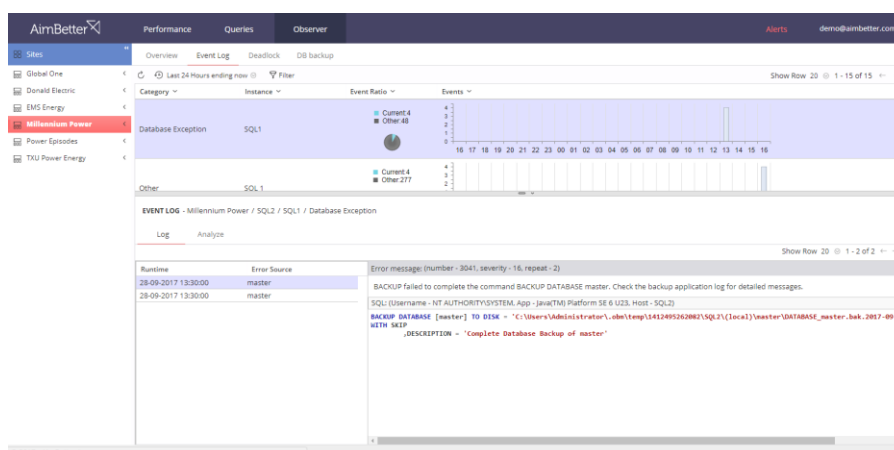
* In accordance with the chosen path and the sampled server.

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7. Alerts

Aimbetter Alerts identifies and displays alerts from within the Aimbetter solutions of all the monitored systems in a simple, clear and centralized display.
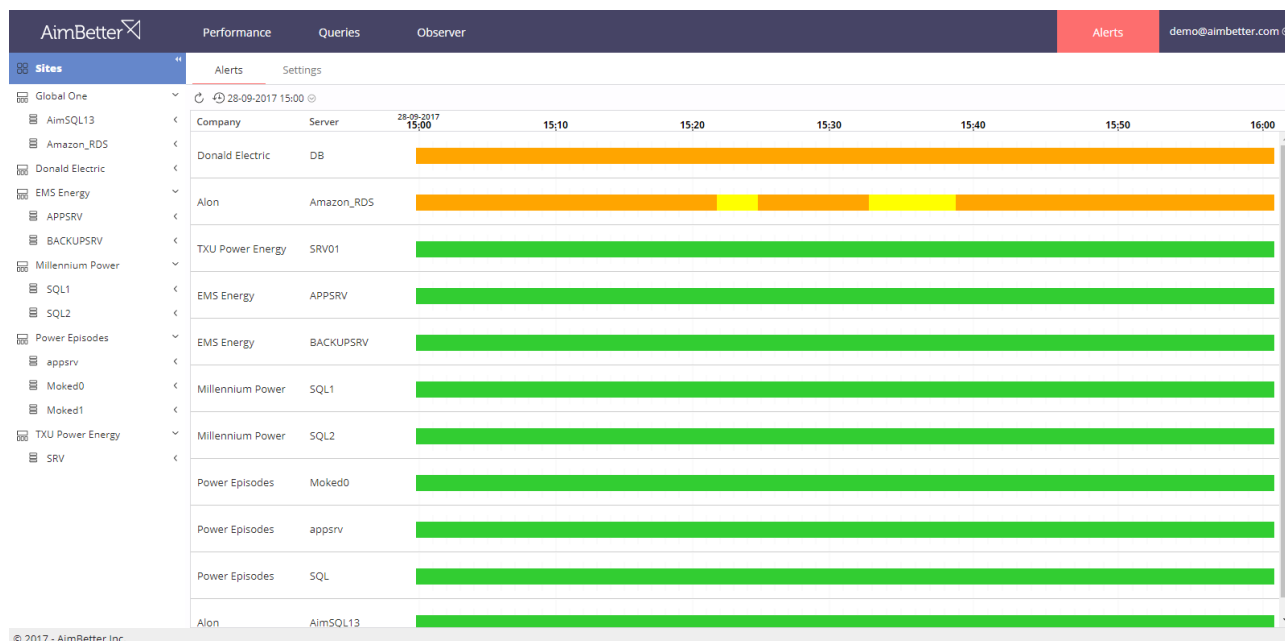
Essential capabilities

- Alerts concerning the critical metrics for system operation. - Aimbetter Alert Metric.

- A backward look for the identification of the state of the system.

- Alert through push at the time of the fault (via email, SMS, etc.)

- Changeable alert levels

- Viewing and quick understanding of the history of server faults.
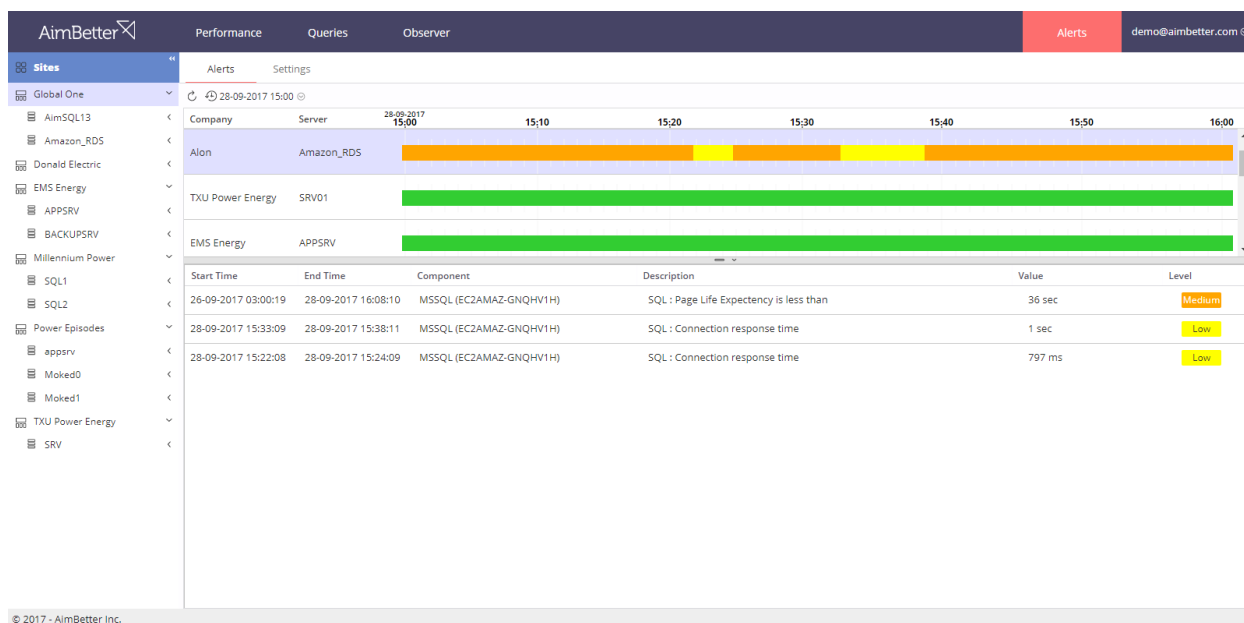
8. Appendix

1.1. 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 slowness 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 evidence of system slowness. You should check who is using a lot 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 usage (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 slowness in the system.
Last Restart	The time of the last restart of the system	
Ping Lost Packets (0-12)	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 indicates slowness 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 amount of processes waiting for the processor	Multiple waiting processes can indicate slowness in the system.
Mem Page Read	The reading time of information from the storage to the physical memory	A high reading time implies that perhaps the size of the present memory is insufficient for the system, and can cause slowness in the functioning of the system.

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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 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 much reading and writing.

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 slowness 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 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 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 programs 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 programs and processes in the system.
Busy Time	The level in percentage of the usage (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 slowness in the system.

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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 amount of writing and reading to and from the (disk) storage per second	In a situation where the amount of reading and writing is high, system responses can be slow
IO Write(sec)	The amount of writing to the (disk) storage per second	In a situation where the amount of writing is high, system responses can be slow
IO Read(sec)	The amount of reading from the (disk) storage per second	In a situation where the amount of reading 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 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
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	

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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 amount of processor resources, a situation which can lead to slowness in the whole system.
Memory	The amount of physical memory utilized by the process in MB	A large amount of memory needed indicates that this process is utilizing a large amount of memory which can lead to slowness 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 amount of reads from the physical memory	
Writes	The process's amount of writes to the physical memory	

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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 slowness 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
Batch requests	The amount 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 amount of operations in the SQL server.

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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 amount of page reads (each page is 8KB) from the (disk) storage per second.	A large amount 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 amount of page writes (each page is 8KB) from the (disk) storage per second.	A large amount 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 amount of running program compilation together with a low amount of the batch requests metric indicates a large usage of direct queries, sp_executesql and no procedures with determined variables.
Re Compilation	The number of times the SQL recompiles the running programs of the queries per second	A large amount of running program recompilation together with a low amount 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 amount of latches of tables per second for the purpose of updating or deletion.	A high amount of latches causes slowness in the reception of data from the latched tables. You should investigate a change in the method of update or deletion.
Page Splits	The amount of pages splitting for the purpose of allocation in the event that the index does not have space at the frequency	An amount higher than 20 per second necessitates a check of the specifications of the index.

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	of a second	
Checkpoint Pages	The amount of the update 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 amount 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 amount 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 utilising 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	

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DB		
Status	The status of the database	• 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
Memory	The amount of memory which this database is taking up in the physical memory in MB	
Size	The size which the database is taking in the (disk) storage divided into log and information	When the log is taking up more than 60% of the size of the database there is a problem. You should investigate the integrity of processes for this database, such as transactions (containing recursion), and backups.
Data Growth	The rate of information growth in the data base in the (disk) storage in MB	When a lack of space in the (disk) storage is created, you should investigate whether the database has somehow grown substantially
Log Growth	The rate of growth of the log in the database in the (disk) storage in MB	When a lack of space in the (disk) storage is created, you should investigate whether the database has somehow grown

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		substantially.
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	The amount of transaction operations which began per second	A large number of transaction operations indicates
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 amount of read and write operations from the (disk) storage at the sampled time.	A very large amount of reads and writes can cause slowness as a result of a load on the (disk) storage
Log size	The size assigned to the log files in MB of the database	
Log Use	The size of the log used in MB	
	The date of the creation of the database	
Data Files	The amount of files the database consists of	
Data Read IO	The amount of reads from the (disk) storage	
Data Write IO	The amount of writes from the (disk) storage	

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1.2. Alert – Metric

Metric	Levels of Alert			Description
CPU usage	Above	50%	70%	90%	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.
Memory Free	Below	0.3GB	0.2GB	0.1GB	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	512MB	1024MB		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%	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 space	Above	1.5GB	1GB	0.5GB	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	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.
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.

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Process memory	Above	100MB	200MB	500MB	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	500MS	1000MS	2000MS	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.
Page Life Expectancy	Above or equal to	500sec	300sec		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	5	10	20	A large amount of deadlock situations indicates that there are many processes which are not ending.
Buffer Cache Hit Ratio	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	60Min	180Min	1440Min	A log backup at a frequency of an hour lowers the risk of information loss down to an hour when there is a fault.

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Full backup	Full backup			1500Min	A full backup at the frequency of a day lowers the risk of information loss when there is a fault.
Differential backup	Differential backup			1500Min	The backup of information from the full to the present backup point at the frequency of a day
Log/Data percentage	Log/Data percentage	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.
SQL error	SQL error			5	A large amount of errors for queries necessitates an investigation as this can be evidence of abnormality in the system.
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			0	The dropping of a SQL process can cause disruption of the system integrity.
SQL job cancelled	Above or equal to	0			The cancelling of a SQL process can cause a disruption of the system integrity.

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