dbWatch Control Center

for

Microsoft SQL Server

dbWatch Control Center for Microsoft SQL Server Databases

dbWatch Control Center is a database monitoring and management solution for SQL Server databases. It provides automated monitoring, keeps track of different performance metrics, and analyzes performance and resource trends across your database farm. It generates key performance reports for management and end-users.

dbWatch Control Center will provide a full insight and bird's eye view of databases resources, utilization rate, tablespace usage, file growth rate and other critical information. With this tool, whether you are connecting to a cloud or on-premises environment, you can proactively monitor and control different configurations of your SQL Server databases and easily pinpoint performance bottlenecks across their SQL Server database farm.

dbWatch Control Center - SQL Server Key Features

- Cross platform database monitoring and management

- Manage different database platforms/versions in a single view

- Resource tracking- keep track of your SQL Server resource usage

- Database farm performance, capacity and resource management

- Full monitoring for On-Premises, Cloud or Hybrid setups/multi-site support

- Web dashboards

- Bulk installation of instances

- Flexible Alerts and Notification configuration

- SQL Worksheet for easy query across the server farm

- Autodiscover of new instances in network

- Customizable views and integration with 3rd party infrastructure monitoring solutions

- Chat system for inter-DBA communication

- Advanced, customizable Reporting features

Benefits of using *dbWatch Control Center* for SQL Server

dbWatch Control Center is a powerful, flexible, and scalable solution that can help you monitor and manage all your database servers. It offers security at a granular level that controls access to servers by authorized users.

With *dbWatch Control Center*, you can add, remove, and edit databases using the User Interface. It scales easily from a handful of instances to the largest database farms with thousands of instances. Its structure ensures that scaling up or down has minimum impact on networks or servers while maintaining maximum performance in monitoring and management.

dbWatch Control Center enables DBAs to manage more instances effectively. With the power of *dbWatch Control Center*, DBAs can:

- Build workflows, customize reports, and automate their DBA tasks
- Have a better overview and insight of their database's health
- Spend less time on routine monitoring and maintenance
- Attain higher productivity with fewer incidents

# What *dbWatch Control Center* offers:

1. Cross Platform Monitoring

dbWatch Control Center handles most major database platforms such as Microsoft SQL, Postgres, MySQL and Oracle, on-premises or in Azure or AWS.

2. Automated Monitoring

Database jobs captures database status and performance data, memory information, back-up information, and other database-related information. Fully agentless, the dbWatch server handle all scheduling and information collection.

## 3. Database Monitoring and Management in a single window
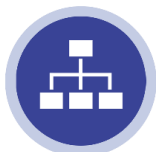
Access your database's information and modify its configuration in the same window. Perform database tuning, and backups in the Management module. Drill down flagged issues and fix them on the fly without the need of executing an SQL statement.

4. Customizable Farm Views

Monitor any number of instances in a single global view. Personalize your dashboard displays as you see fit. Have a complete overview of your entire database farm database system.
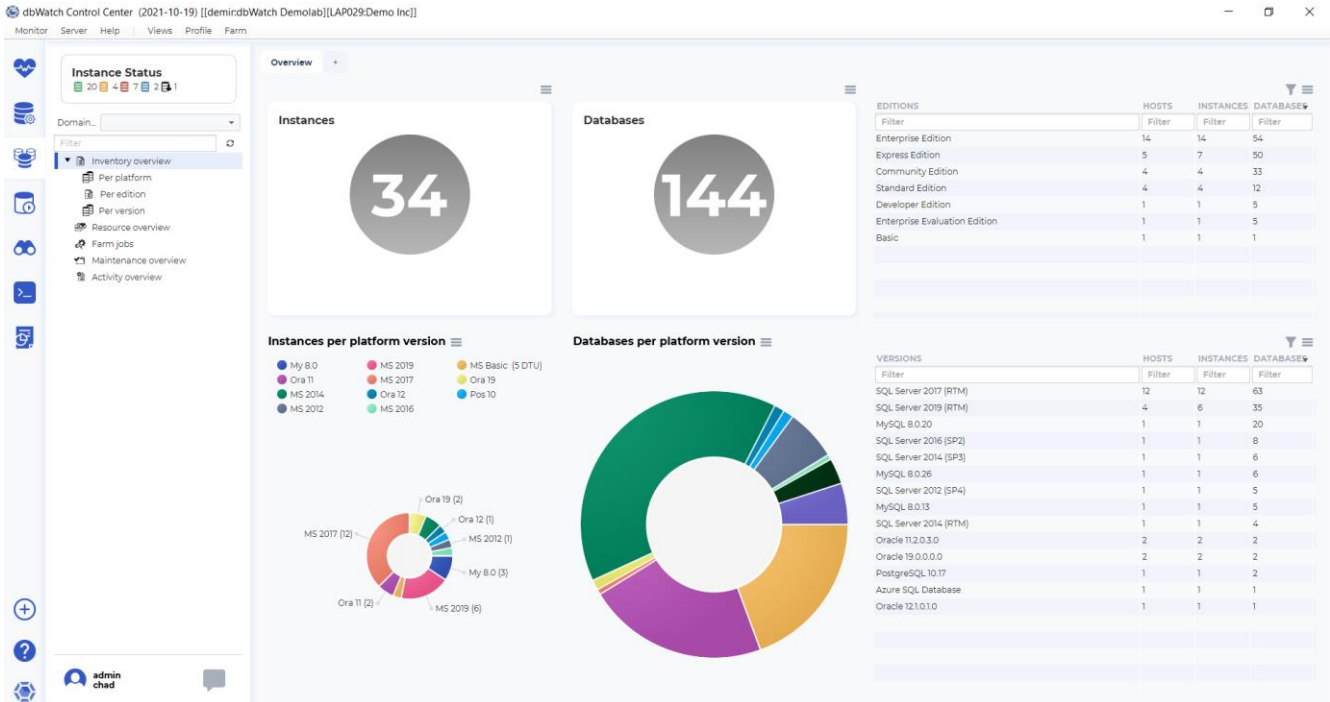
5. Database Security and Access Control

Control and limit access to your database. Limit the users viewing and utilizing *Control Center*. Set privileges and restrict access to users.

6. Report Generation

Generate daily or weekly reports for managers. Produce reports on the fly. Customize reports based on your organization's needs. Schedule automatic report production and distribution.

7. Chat System

Enable communication with other DBAs to notify them about existing issues and tag existing tasks you're working on across the database farm.

Functional Modules

	Monitoring	The Monitoring module provides a wide range of monitoring tasks and alerts. Tasks provide statistics and growth rates for your database, which allows for better planning and performance analysis of how your system is behaving.
	Management	The Management module provides an administration GUI for the day-to-day administration DBA work. Role-based access control defines what tasks the user may do on any instance.
	Farm	Farm module gives you an overview of all your monitored instances. Group monitoring can be done per platform, per version, job statuses and many more. Farm module also provides resource overview for your server's memory and disk memory.
	Worksheet	The SQL Worksheet is your handy SQL Editor. Write SQL queries in your database's native language and execute as ad-hoc queries or stored procedures. Save and load them for future use. Use multiple tabs to execute queries in multiple instances.
	Autodiscover	Autodiscover module automatically finds new database instances in a defined network range. You can freely set schedules and network range(s).
	FDL Console	With FDL Console, you can customize or create farm views and dashboards. FDL is a powerful query language to query multiple instances and platforms and build custom dashboards and views.
	Reporting	Report module is a powerful reporting tool that lets you automatically generate and distribute reports in html or pdf formats to designated recipients. Report module comes with standard DBA reports for each platform.

dbWatch Control Center jobs:

dbWatch Control Center has a large variety of jobs that helps you monitor and manage your servers. We have jobs to manage your needs on availability, capacity, clusters and replication, maintenance, and performance.

Each category has specialized jobs that collect statistics and status from your database instance. Some jobs collect information, some alter database states, optimize database performance, and configure databases directly. All jobs can be triggered manually or in a set frequency. You can customize these jobs parameters to suit your monitoring preference and provide proactive management for your database instance. Below is a list of currently available jobs for MS SQL Server:

dbWatch Control Center Jobs	Description
Availability	
Agent Jobs Check	Checks whether there exist jobs on the SQL server which have not been executed or have failed during execution.
Check database recovery mode	Checks if all databases run in SIMPLE (or FULL) recovery mode.
Collation check	Checks if there is a collation conflict with temp tables and table variables.
Database backup	This procedure analyzes the backup statistics (type D and I) from the msdb.dbo.backupset table (excluding the system databases: master, model and msdb).
Database backup (SIMPLE)	This procedure analyzes the backup statistics (type D) from the msdb.dbo.backupset table for databases in SIMPLE recovery model (excluding the system databases: master, model and msdb).
Database backup (system databases)	This procedure analyzes the backup statistics for the system databases (master, model and msdb) using data from the msdb.dbo.backupset table.
Database Log backup	This procedure checks the database transaction log backups from the msdb.dbo.backupset table (excluding system databases: master, model and msdb).
Database Server uptime	Collects database server uptime statistics.
Database status	Checks if all databases have status ONLINE
Deadlocks event collector	Collects deadlocks event statistics from Microsoft SQL Server Extended Event Log files. If configured a warning or an alarm can be triggered when a deadlock is detected.
Instance error log	Reads and checks the Instance error log file by using the the sp_readerrorlog stored procedure.
Instance status	This alert checks if the instance has been restarted since the last check

Program status	Checks for any program connected to the SQL Server by checking the program_name column in the master.dbo.sysprocesses table.
Restricted Enterprise edition features	Checks if there are any restricted features in use (supported only by Enterprise or Developer SQL Server edition).
SQL Server Agent status	Checks if the SQL Server Agent is running.
Capability	
Auto growth event collector	Collects statistics on how often an auto-growth event has occurred.
Data file size check	Checks the remaining space for all databases where the data files are set with limited growth rate (max size not unlimited).
Database disk capacity	Checks free space on drives where data and transaction log files are defined. An alarm (or warning) is raised if the percentage limit is reached OR if the abosulte limit is reached. IF the xp_cmdshell Instance configuration option is enabled the alert can check disk and mounted volumes where data-files are not present.
Database disk space usage	Checks free space on drives where all data and transaction log files are defined. Drives where no data files exist will be ignored.
Database growth rate (aggregated)	Collects size of all database files (including transaction log files) to visualize the growth rate for all databases.
Database growth rate (detailed)	Collects size of database files (including transaction log files) to visualize the growth rate for the largest databases.
Databases NOT IN USE collector	Collects information about most inactive databases.
Disk space check	Checks the amount of free space on the available disk drives.
Filegroups growth rate	This procedure collects space usage in all filegroups defined in each database. The undocumented "sp_MSforeachdb" Stored Procedure is used to execute T-SQL statements against dbo.sysfiles table in every database defined on a SQL Server instance.
Instance error log file size check	Checks the size og the Instance error log file by using the extended stored procedure xp_cmdshell.
Objects size collector (all databases)	Collects table and index size information for the largest objects for all databases.
Temporary database space usage	Checks space usage in tempdb database and collects statistics including size of data and transaction log files.
Transaction log size check	This procedure checks the size of the transaction log (log file(s) size) and compares it to the database size (data file(s) size). If the size of the transaction log file(s) in percentage is greater than the warning/alarm parameter value, the check returns a warning/alarm.

Transaction log space usage	This procedure checks information returned by DBCC SQLPERF which is used to monitor the amount of space used in the transaction log.
Version Store Space Usage (tempdb)	Checks latest updates for Microsoft SQL Server
Maintenance (Not Test/Development Licenses)	
Auto grow settings	Checks database files auto-growth settings.
Backup All databases	Takes backup of all application and system databases.
Backup All transaction logs	Takes backup of all transaction logs for databases running in FULL recovery mode.
Check database and server principal mapping	Checks if the database owner (dbo) is maped into any Server Login (Server principal).
Cleanup MSDB history tables	This task deletes entries in the MSDB database history tables which holds statistics of backup/restore, jobs and maintenance plan executions.
Cycle error log	This task cycle MS SQL Server error log and Agent error log files.
DBCC CHECKDB	Checks the logical and physical integrity of all the objects in all databases by performing the DBCC CHECKDB operation.
DBCC UPDATEUSAGE	This task is performing the DBCC UPDATEUSAGE operation to corrects pages and row count inaccuracies in the catalog views. These inaccuracies may cause incorrect space usage reports returned by the sp_spaceused system stored procedure.
External Fragmentation (all databases)	External Fragmentation occurs when an index leaf page is not in logical order. it occurs when the logical ordering of the index does not match the physical order of the index. This causes SQL Server to performance extra work to return ordered results.
Framework	dbWatch engine framework job (for internal use only). Used for patching or upgrading of dbWatch engine framework.
Internal fragmentation check	Checks the internal fragmentation for tables and indexes in all databases. The information is extracted from the dynamic management function (view) sys.dm_db_index_physical_stats.
Rebuild indexes	Rebuilds fragmented indexes in all databases.
Rebuild indexes in table	Rebuilds fragmented indexes in all tables listed in the "table list" parameter.
Reorganize indexes	Reorganizes fragmented indexes in all databases.

Reorganize indexes in table	Reorganizing fragmented indexes in all tables listed in the "table list" parameter.
SQL Server performance counters	Checks if SQL Server performance counters are missing.
Shrink Transaction Logs	This procedure shrinks transaction log files which are detected by "Transaction log size check" alert. The alert job checks the size of the transaction log (log file size(s)) and compresses it to the database size (data file size)
Update index statistics	Update statistics in all (non-system) databases.
Update statistics	Update statistics in all (non-system) databases.
Performance	
Blocking statistics	Checks whether there exist any blocked sessions.
Data cache memory usage	Collects data cache memory usage per database (for top 10 databases).
Data hit ratio	Monitors the buffer cache hit ratio by extracting counter values from the master.dbo.sysperfinfo table for the counters "Buffer cache hit ratio" and "Buffer cache hit ratio base".
Database Session Load	Shows the number of connections over time per database, host and application.
File IO statistics	Collects I/O statistics for data and log files.
High activity monitor	Collects SQL instance CPU usage, CPU usage of other processes, logical and physical reads, and active processes count on the SQL Server instance.
Index usage statistics (all databases)	This procedure collects statistics from sys.dm_db_index_usage_stats performance view which gives information on how an index (or a table – heap) has been used to resolve queries.
Instance memory check	This job checks the target memory value of the SQL Server instance and gives a warning/alarm if the instance is not able to allocate a certain percentage of the total server/machine memory.
Instance memory usage	Collects total memory usage and data cache memory usage for SQL Server instance. This dbWatch task can be configured to automatically reduce the amount of memory used by the SQL Server instance.
Internal fragmentation (All databases)	Internal fragmentation occurs when there is too much free space in the index pages. Typically, some free space is desirable, especially when the index is created or rebuilt. You can specify the Fill Factor setting when the index is created or rebuilt to indicate a percentage of how full the index pages are when created. If the index pages are too fragmented, it will cause queries to take longer (because of the extra reads required

	to find the data set) and cause your indexes to grow larger than necessary. If no space is available in the index data pages, data changes (Primarily inserts) will cause page splits, which also require additional system resources to perform.
Lazy writer and Checkpoint statistics	Monitors "Checkpoint pages/sec", "Lazy writes/sec" and "Page life expectancy" by extracting counter values from the sys.dm_os_performance_counters performace table.
Session load	Shows the number of active sessions over time.
Sessions per database	This task returns aggregate performance statistics based on sessions connected to the SQL Server instance.
SQL statements (Logical reads)	Collects statistics for the SQL statements corresponding to the query plans that have resulted in the most logical reads.
Test DML-DDL performance	Runs performance test on the database. The procedure executes SELECT, INSERT, UPDATE, DELETE (and TRUNCATE) statements on the test table.
Transactions load	Shows the transactions load over time, total and top 5 databases.
Transactions log flushed bytes load	Shows bytes flushed to transaction logs over time, total and top 5 databases.
Wait statistics	Collects statistics about all waits encountered by threads that executed. This task is based on the sys.dm_os_wait_stats dynamic performance view.
Clustering and Replication (Requires Cluster License)	
Database mirroring	Checks state information of all mirrored databases.
Cluster Replication	Checks if an instance switched to a different host in a Windows Server Failover Cluster (WSFC)
Log shipping monitor (primary)	Monitor the primary database in each log shipping configuration, including information about the last backup file and last restored file.
Log shipping monitor (secondary)	Monitor the secondary database in each log shipping configuration.
Replication status	The following check provides general info regarding any replication going on in a server.

dbWatch Control Center SQL Server

Available license types for *dbWatch Control Center* for SQL Server:

- License for a single instance (production)
- License, single instance (in cluster/HA) with cluster jobs (production)
- Test or Development license (no cluster, maintenance jobs)

How do you license Availability Groups and Fail-over Clusters?

We recommend licensing each instance you want to monitor, whether they are active, standby, hot, or cold.

For example, your cluster group is comprised of an active SQL Server Instance and a standby SQL Server Instance. You have the option to only provision a license to the active SQL Server instance. Theoretically, during the switch from active to standby, you can move the license from the active instance to the standby instance. But we recommend procuring licenses for both the active and standby database instances so that you are always able to monitor, especially important during a failover incident.

Microsoft SQL Server Versions Supported

Here are the following SQL Server versions currently supported by *Control Center*:

- SQL Server 2000
- SQL Server 2005
- SQL Server 2008
- SQL Server 2008 R2
- SQL Server 2012
- SQL Server 2014
- SQL Server 2017
- SQL Server 2019

***dbWatch Control Center* supports the following editions for SQL Server 2008 and its later versions:**

- Enterprise
- Standard
- Express
- Developer

Software and Hardware Requirements

Architecture Components	Recommended Minimum Requirements	
	dbWatch Server	- Supported Operating Systems: Windows and Linux Server (VMWare virtual server supported) - Needs at 8 GB of RAM - Needs 4 CPU cores - Needs 1 GB HD space available
	dbWatch Engine (Per instance)	500 Mb free space in each database instance - Bulk install for large database environments SA, SYS, or other superuser password required for each engine installation
	dbWatch Client	- Windows and Linux operating system for use with graphical interface 2Gb Memory 500 Mb hard drive space - Java support - Client-Server communication requires a single port only