



Microsoft®

System Center Operations Manager

Guide to Microsoft System Center Management Pack for SQL Server 2016

Microsoft Corporation

Published: March 2019

The Operations Manager team encourages you to provide any feedback on the management pack by sending it to sqlmpsfeedback@microsoft.com.

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Guide to Microsoft System Center Management Pack for SQL Server 2016

This guide is based on version 7.0.15.0 of the Management Pack for Microsoft SQL Server 2016.

Changes History

Release Date	Changes
March 2019 (version 7.0.15.0 RTM)	<ul style="list-style-type: none">• MP was prepared for public release
February 2019 (version 7.0.13.0 CTP)	<ul style="list-style-type: none">• Add "Unavailable Time (seconds)" parameter to "SQL Server Agent Windows Service" monitor• Updated all data sources so that SQL Server connections are established with read-only application intent• Updated "Service Pack Level" monitor to set SP #2 as default• Updated "Resource Pool Memory Consumption" data source to make it check if a database replica is readable before querying it• Fixed exception treating in "Resource Pool Memory Consumption" data source• Increased SQL Command Timeout up to 120 seconds in order to decrease timeout errors occasionally happen to DB Space workflows on heavily loaded servers• Fixed exception treating in "Resource Pool Memory Consumption" data source• Disabled by default XTP counters belong to "SQL Server 2016 XTP Databases" category (We no longer recommend to use them)• Changed the root folder name to "Microsoft SQL Server (old)"
June 2018 (version 7.0.7.0 RTM)	<ul style="list-style-type: none">• Fixed issue: The "The agent is suspect. No response within last minutes" alerting rule does not catch appropriate events due to a wrong source
June 2018 (version 7.0.5.0 CTP)	<ul style="list-style-type: none">• Updated alert severity in some monitors• Updated the display strings• Updated the "Max worker thread count" data source of the corresponding monitor and performance rule

Release Date	Changes
	<ul style="list-style-type: none"> Fixed issue: in some environments, DB Space workflows fail when a secondary database is non-readable Fixed issue: the "Transaction Log Free Space (%)" monitor does not work
April 2018 (version 7.0.4.0 RTM)	<ul style="list-style-type: none"> Updated the "Security Configuration" section in the operations guide Added the actual value of free space (% only) in the alert description of the "Transaction Log Free Space (%)" monitor
March 2018 (version 7.0.3.0 CTP)	<ul style="list-style-type: none"> Added a new discovery for dealing with cases when an SQL Server instance has a vast of database files (near 1500 and more); it is disabled by default Implemented caching of data received from WMI to reduce the number of requests to WMI Improved the output of discoveries of Database Filegroups and Files so they do not contain unnecessary data Changed ps1 data source scripts to avoid the "Pipe is being closed" error Disabled Latency Disk Read/Write performance rules by default Added the actual value of available disk space in DB Space monitoring alerts Updated some of the display strings Increased SQL Command timeout in the data source scripts up to 60 seconds (previously it was 30 seconds)
February 2018 (version 7.0.2.0 RTM)	<ul style="list-style-type: none"> Fixed issue: Always On data source scripts fail as Microsoft.SqlServer.Management.PSSnapins.dll is not imported Fixed issue: Always On monitoring scripts may fail because of "No coercion operator is defined..." error (caused by an issue in PowerShell 5.0) Fixed Dashboards issue: "DW data early aggregation" rule crashes on SCOM 2016
November 2017 (version 7.0.0.0 RTM)	<ul style="list-style-type: none"> The version of the management pack was significantly increased as the SQL Server MP product family was extended with brand new management packs for SQL Server 2017+ and SQL Server 2017+ Replication. The new management packs are designed to monitor SQL Server 2017 and the upcoming versions. Fixed issue: Invalid encoding of SQL instance names in Always On console tasks

Release Date	Changes
October 2017 (version 6.7.34.0 CTP1)	<ul style="list-style-type: none"> Fixed issue: XTP Configuration monitor is always in Warning state for SQL Server 2016 Standard edition Reimplemented Always On workflows to enable monitoring of Availability Groups hosting over 200 databases Updated alert descriptions of Availability Group monitors: added cluster name and primary replica name Implemented 3 alerting rules for events #5105 (error with physical file access), #833 (IO request has taken longer than 15 seconds), and #41144 (AO availability group failed); they are disabled by default Added debug information to Always On monitoring scripts Implemented "MSSQL 2014/16: HTTP Storage: Avg. Bytes/Transfer" performance rule Enabled Memory-Optimized workflows for all editions of SQL Server 2016 by default, so far as all editions now support Memory-Optimized Data since SP1 Disabled the alerting rule for event #18456 by default Optimized ProbeAction for User Resource Pool Memory workflows Fixed issue: Invalid encoding of SQL names in Always On console tasks Fixed issue: "XTP Configuration" monitor is in healthy state when XTP filegroup container and the transaction log are placed on different volumes of a physical disk Fixed issue: Incorrect publishers' names for SSIS EventCollection rules (SQL2016) Fixed issue: GetSQL2016DBEngineWinServState.js crashes when getting neither "true" nor "false" as the second parameter (CheckStartupType)
June 2017 (version 6.7.31.0 RTM)	<ul style="list-style-type: none"> Improved performance of DB Space monitoring workflows Added new "Login failed" alerting rule for SQL Server event #18456 Updated the visualization library
May 2017 (version 6.7.30.0 CTP)	<ul style="list-style-type: none"> Added new "Availability Database Backup Status" monitor in Availability Group to check the existence and age of the availability database backups (this monitor is disabled by default) "Database Backup Status" monitor has been changed to return only "Healthy" state for the databases that are Always On replicas since availability database backups are now watched by the dedicated monitor Fixed issue: "Active Alerts" view does not show all alerts

Release Date	Changes
	<ul style="list-style-type: none"> • Fixed issue: DB space monitoring scripts fail with "Cannot connect to database" error. • Fixed issue: PowerShell scripts fail with "Cannot process argument because the value of argument 'obj' is null" error • Fixed issue: Alert description of "Disk Ready Latency" and "Disk Write Latency" monitors displays the sample count instead of the performance value that was measured • Fixed issue: Different file location info from "sys.master_files" and "sysfiles" causes error when Availability Group secondary database files are in different path • Fixed issue: "DB Transaction Log Free Space Total" rules return wrong data • Introduced minor updates to the display strings • Deprecated "Garbage Collection" monitor and the appropriate performance rule • Resource Pool Discovery is disabled by default for pools not containing databases with Memory-Optimized Tables • "XTP Configuration" monitor now supports different file path types (not only those starting with C:, D:, etc.) • Fixed issue: "Resource Pool State" view shows incorrect set of objects • Fixed issue: Invalid group discovery in SQL Server 2016 Always On
March 2017 (version 6.7.20.0 RTM)	<ul style="list-style-type: none"> • Fixed issue: GetSQL20XXSPNState.vbs fails when a domain controller is Read-Only • Fixed issue: SQL ADODB "IsServiceRunning" function always uses localhost instead of server name
February 2017 (version 6.7.16.0 CTP)	<ul style="list-style-type: none"> • Implemented some enhancements to data source scripts • Fixed issue: DatabaseReplicaAlwaysOnDiscovery.ps1 connects to a cluster instance using node name instead of client access name and crashes • Fixed issue: CPUUsagePercentDataSource.ps1 crashes with "Cannot process argument because the value of argument 'obj' is null" error • Fixed issue: Description field of custom user policy cannot be discovered • Fixed issue: SPN Status monitor throws errors for servers not joined to the domain • Fixed issue: SQL Server policy discovery does not ignore policies targeted to system databases in some cases • Fixed issue: Garbage Collection monitor gets generic PropertyBag instead of performance PropertyBag

Release Date	Changes
	<ul style="list-style-type: none"> Increased the length restriction for some policy properties in order to make them match the policy fields Actualized Service Pack Compliance monitor according to the latest published Service Packs for SQL Server
December 2016 (version 6.7.15.0 RTM)	<ul style="list-style-type: none"> No extra permissions on remote WMI are now required for Local System account when Always On hosts have names that are no longer than 15 symbols Fixed: Always On discovery and monitoring scripts cannot read cached values in Windows registry Fixed: Wrong MP version number in some Always On scripts Fixed: CPUUsage and DBDiskLatency scripts fail with the reason: "Index operation failed" Added retry policy in some Always On workflows to make PS-scripts work more stable Updated the visualization library Fixed: Always On objects get undiscovered when any Always On discovery crashes
October 2016 (version 6.7.7.0 RTM)	<ul style="list-style-type: none"> Fixed issue: "Set DB offline" task does not work when the database is in Availability Group Fixed issue: Always On console task does not work Updated the visualization library
September 2016 (version 6.7.5.0 CTP2)	<ul style="list-style-type: none"> Added support for configurations where computer host names are longer than 15 symbols Added "Event ID" to descriptions of all the alerts generated by the alerting rules Deprecated "Run As Account does not exist on the target system, or does not have enough permissions" rule Added 2 rules for alerts generating when there are problems with execution of the monitoring workflows scripts on the following agents: "MSSQL: Monitoring failed" and "MSSQL: Monitoring warning" Added "MSSQL 2016: Discovery warning" rules to generate alerts when there are non-critical problems with execution of the discovery scripts (warning events in the Operations Manager log) Changed "MSSQL 2016: Discovery failed" rules to generate alerts for only critical errors during executing discovery scripts Improved error logging in the MP scripts Fixed some issues in the scripts, which could lead to unstable work with WMI Fixed the issue when not all available performance counters were presented at "All Performance Data" view in Memory-Optimized Data sub-folder

Release Date	Changes
	<ul style="list-style-type: none"> • Added a new overridable parameter to monitor “Stale Checkpoint File Pairs Ratio” in order to ignore databases having the number of checkpoint file pairs less than the threshold (300 by default) • Made “Resources Pool Memory Consumption (rollup)” enabled by default • Updated the visualization library
August 2016 (version 6.7.3.0 CTP1)	<ul style="list-style-type: none"> • Disabled Memory-Optimized Data Garbage Collection Fill Factor monitor and rule by default • Disabled Memory-Optimized Data workflows for all SQL Server editions that do not support Memory-Optimized Data feature • Fixed issue: CPU Usage monitor & rule did not work for SQL Server cluster instance • Fixed issue: connection to an SQL Server instance was not closing when the destination was wrong • Fixed issue: in some cases, Set Database Online/Offline tasks did not work for databases of SQL Server cluster instance • Made detection condition stricter for DB User Policy event-based discovery: added management group name • Made detection condition stricter for Script Failed alerting rule: added management group name
June 2016 (version 6.7.2.0 RTM)	<ul style="list-style-type: none"> • Changed EventID for MP events generated by the scripts (became 4202 for the Always On scripts and 4211 for the others) • Disabled Memory-Optimized Data workflows for SQL Server 2016 Express • Added new performance rules for Always On Log Apply Pending/Ready Queue counters • Added rules for alerting when an Availability Replica changed its role and/or a Database Replica changed its role • Added MP version line into MP events generated by the scripts • Fixed the display strings and Knowledge Base articles • Fixed issue: some scripts was not returning data when one of the few installed instances was stopped • Fixed issue: SPN configuration monitor used stale data • Run As profiles are now presented in GPMP library and ready to become generic profiles for all SQL Server MPs starting with 2016

Release Date	Changes
	<ul style="list-style-type: none"> Fixed issue: mirroring monitoring scripts were failing when the instance was stopped
June 2016 (version 6.7.1.0 RC3)	<ul style="list-style-type: none"> Updated the visualization library
May 2016 (version 6.7.0.0 RC3)	<ul style="list-style-type: none"> Fixed Smart Admin policies monitoring Fixed Always On Database replica discovery incorrect behavior; fixed Always On policies discovery and monitoring Fixed Database policies discovery and monitoring Fixed and optimized CPU Usage monitoring scripts (the issue appeared when only one core was assigned) Added support for more than 32 processors count in CPU Usage monitoring. SQLPS module is now used for the tasks instead of deprecated SQLPS.EXE Implemented FILESTREAM filegroup monitoring FILESTREAM is now supported on the summary dashboard Multiple Ports are now supported in SQL Server TCP/IP parameters Fixed error occurring when no port is specified in SQL Server TCP/IP parameters Fix filegroup read-only state discovery Fixed Run As profiles mapping for some workflows Added support for new SQL Server 2016 Memory-Optimized Data implementation Implemented support for TLS 1.2 in connection logic Implemented support for different client drivers in connection logic Updated connection logic error logging Updated Availability Group Automatic Failover monitor Added rules to collect new Always On performance counters Updated SMO usage in Always On workflows to support the new connection logic Upgraded the used PowerShell version to 3+, since SQL Server 2016 uses .Net 4 Runtime Fixed issue: CPU usage monitor ignored SQL server limitations on CPU core count Fixed display strings and Knowledge Base articles Fixed error reporting in the scripts Fixed threshold percentage comparison of deactivated subscriptions workflow in Distributor
March 2016	The original release of this management pack

Get Started

In this section:

- [What's New?](#)
- [Supported Configurations](#)
- [Management Pack Scope](#)
- [Prerequisites](#)
- [Files in this Management Pack](#)
- [Mandatory Configuration](#)

What's New?

Compared to Management Pack for Microsoft SQL Server 2014, the following improvements were implemented:

- Support for the recent Microsoft SQL Server 2016 Memory-Optimized Data implementation
- Up-to-date Availability Group Automatic Failover monitor
- Advanced rules to collect the recent Always On performance counters
- PowerShell 3+ and .Net Framework 4 Runtime support
- Run As Profiles are now presented in GPMP library and ready to be generic profiles for all SQL Server MPs starting with 2016

Supported Configurations

This management pack is designed for the following versions of System Center Operations Manager:

- System Center Operations Manager 2007 R2 (Except Dashboards)
- System Center Operations Manager 2012 SP1
- System Center Operations Manager 2012 R2
- System Center Operations Manager 2016
- System Center Operations Manager 1801
- System Center Operations Manager 1807
- System Center Operations Manager 2019

A dedicated Operations Manager management group is not required for this management pack. .NET Framework 4.6 and Windows PowerShell 3+ are required.

The following table details the supported configurations for the management pack:

Configuration	Support
SQL Server 2016	<p>Windows Server 2008</p> <p>Windows Server 2008 R2</p> <p>Windows Server 2012</p> <p>Windows Server 2012 R2</p> <p>Windows Server 2014</p> <p>Windows Server 2016</p> <ul style="list-style-type: none"> • 64-bit SQL Server on 64-bit OS • 32-bit SQL Server on 32-bit OS <p>Note: 32-bit SQL Server instances are not supported on 64-bit OS</p>
Clustered servers	Yes
Agentless monitoring	Not supported
Virtual environment	Yes

Note that neither SQL Server Express edition (SQL Server Express, SQL Server Express with Tools, SQL Server Express with Advanced Services) support SQL Server Agent, Log Shipping, Always On, OLAP Services and Data Mining, Analysis Services and Integration Services.

In addition, SQL Server Express and SQL Server Express with Tools do not support Reporting Services and Full text search. However, SQL Server Express with Advanced Services support Full text search and Reporting Services with limitations.

All SQL Server Express editions support Database mirroring as Witness and Replication as Subscriber only.

The installation of SQL Server 2016 is only supported on x64 processors; it is not supported on x86 processors. For more information, see [Hardware and Software Requirements for Installing SQL Server](#) article.

SMB fileshares are supported as a storage option. For more information, see [Description of Support for Network Database Files in SQL Server](#) article.

Management Pack Scope

Management Pack for Microsoft SQL Server 2016 enables the monitoring of the following features:

- SQL Server 2016 Database Engines (supported editions: Enterprise, Business Intelligence, Standard, Express))
- SQL Server 2016 Databases (including filegroups, data files, and transaction log files)
- SQL Server 2016 Agent

- SQL Server 2016 Always On Availability Groups (Current version does not support Distributed Availability Groups monitoring)
- SQL Server 2016 Failover Clusters
- SQL Server 2016 Mirroring
- SQL Server 2016 Memory-Optimized Data
- SQL Server 2016 Managed Backup to Microsoft Azure
- SQL Server 2016 Integration Services



Important

We recommend that you monitor no more than 50 databases and 150 database files per System Center Operations Manager agent to avoid spikes in CPU usage that may affect the performance of monitored servers.



Important

Agentless monitoring is not supported by Management Pack for Microsoft SQL Server 2016.



Note

Please refer to “[Monitoring Scenarios](#)” section for a full list of monitoring scenarios supported by this management pack.



Note

For more information and detailed instructions on setup and configuration, see [Configuring the Management Pack for Microsoft SQL Server 2016](#) section of this guide.

Prerequisites

As a best practice, you should import the Windows Server Management Pack for the operating system you are using. The Windows Server Management Packs monitor aspects of the operating system that influence the performance of computers running SQL Server, such as disk capacity, disk performance, memory utilization, network adapter utilization, and processor performance.

Files in this Management Pack

The Management Pack for Microsoft SQL Server 2016 includes the following files:

File	Description
Microsoft.SqlServer.2016.Discovery.mp	This Management Pack discovers Microsoft SQL Server 2016 and related objects. The management pack only contains the discovery logic and requires the separate monitoring management pack to be imported to monitor the discovered objects.

File	Description
Microsoft.SqlServer.2016.Monitoring.mp	This Management Pack enables the monitoring of Microsoft SQL Server 2016. It depends on the Microsoft SQL 2016 (Discovery) Management Pack.
Microsoft.SqlServer.2016.Presentation.mp	This Management Pack adds SQL Server 2016 Dashboards.
Microsoft.SqlServer.2016.Views.mp	This Management Pack contains views and folder structure for Microsoft SQL Server 2016 management packs.
Microsoft.SqlServer.2016.Always On.Discovery.mp	This Management Pack discovers objects required for monitoring of Microsoft SQL Server 2016 Always On functionality. It contains only discovery logic and requires the separate monitoring management pack to be imported to enable monitoring.
Microsoft.SqlServer.2016.Always On.Monitoring.mp	This Management Pack enables the monitoring of Microsoft SQL Server 2016 Always On functionality. It depends on the Microsoft SQL 2016 Always On (Discovery) Management Pack.
Microsoft.SqlServer.2016.Always On.Views.mp	This Management Pack contains views and folder structure for Microsoft SQL Server 2016 Always On management packs.
Microsoft.SqlServer.2016.IntegrationServices.Discovery.mp	This Management Pack discovers Microsoft SQL Server 2016 Integration Services. It contains discovery logic and requires the separate monitoring management pack to be imported to monitor the discovered objects.
Microsoft.SqlServer.2016.IntegrationServices.Monitoring.mp	This Management Pack enables monitoring of Microsoft SQL Server 2016 Integration Services.
Microsoft.SqlServer.2016.IntegrationServices.Views.mp	This Management Pack contains views and folder structure for Microsoft SQL Server 2016 Integration Services management packs.
Microsoft.SqlServer.Generic.Presentation.mp	This Management Pack defines common folder structure and views.
Microsoft.SqlServer.Generic.Dashboards.mp	This Management Pack contains generic SQL Server dashboards.
Microsoft.SqlServer.Visualization.Library.mpb	This Management Pack contains base visual components required for SQL Server dashboards.

File	Description
Microsoft.SqlServer.2016.Mirroring.Discovery.mp	This Management Pack discovers objects required for monitoring of Microsoft SQL Server 2016 Mirroring functionality. It contains only discovery logic and requires the separate monitoring management pack to be imported to enable monitoring.
Microsoft.SqlServer.2016.Mirroring.Monitoring.mp	This Management Pack enables the monitoring of Microsoft SQL Server 2016 Mirroring functionality. It depends on the Microsoft SQL 2016 Mirroring (Discovery) Management Pack.
Microsoft.SqlServer.2016.Mirroring.Views.mp	This Management Pack contains views and folder structure for Microsoft SQL Server 2016 Mirroring management packs.

Mandatory Configuration

To configure Management Pack for Microsoft SQL Server 2016 complete following steps:

- Review the “[Configuring the Management Pack for Microsoft SQL Server 2016](#)” section of this guide.
- Grant required permissions as described in “[Security Configuration](#)” section of this guide.
- Enable the Agent Proxy option on all agents that are installed on servers that are members of the cluster. It is not necessary to enable this option for standalone servers. For more information about enabling Agent Proxy option see “[How to Enable Agent Proxy Option](#)” section of this guide.
- Import the Management Pack.
- Associate SQL Server 2016 Run As profiles with accounts that have appropriate permissions. For more information about configuring Run As profiles see “[How to Configure Run As Profiles](#)” section of this guide.

Management Pack Purpose

In this section:

- [Monitoring Scenarios](#)
- [How Health Rolls Up](#)



Note

For details on the discoveries, rules, monitors, views, and reports contained in this management pack, see following sections of this guide:

- [Appendix: Management Pack Objects and Workflows](#)
- [Appendix: Management Pack Views and Dashboards](#)
- [Appendix: Management Pack Reports](#)

Monitoring Scenarios

Discovery of SQL Server Database Engine Instances

The Management Pack for Microsoft SQL Server 2016 automatically discovers stand-alone and clustered instances of SQL Server 2016 across all managed systems that run System Center Operations Manager agent service. Certain instances may be excluded from discovery by applying an override for “**Exclude List**” parameter of “[MSSQL 2016: Discover SQL Server 2016 Database Engines](#)” discovery. This parameter accepts a coma-separated list of values.

Database Discovery and State Monitoring

For each managed database engine, the databases on it are discovered and monitored using a number of rules and monitors. Please refer to “[Appendix: Management Pack Objects and Workflows](#)” section for the full list of rules and monitors targeted to databases.

You can apply overrides to the discovery to specify an “Exclude List” (in comma-delimited format) of database names that the discovery should not consider.

Always On Availability Groups

This management pack enables the monitoring of Microsoft SQL Server 2016 Always On Availability Groups. The following objects are automatically discovered:

- **Availability Group** – which represents Availability Group SMO object and contains all properties required for identification and monitoring.
- **Availability Replica** – which represents Availability Replica SMO object and contains all properties required for identification and monitoring.

- **Database Replica** – which represents an Always On database level object and contains properties from Availability Database SMO object and Database Replica State SMO object.
- **Availability Group Health** – a hidden object, which is used to roll up the health from agents to availability group level.



Important

This management pack does not support monitoring of **Distributed Availability Groups**.

This management pack has two event rules for alerting when the following events appear in the Windows Application log:

- Event ID 1480: Database Replica role is changing
- Event ID 19406: Availability Replica role changed

Note that these events are disabled in SQL Server by default. To enable them, execute the next TSQL scripts:

- `sp_altermessage 1480, 'with_log', 'true'`
- `sp_altermessage 19406, 'with_log', 'true'`

The management pack collects the health for all available Always On objects on the target instance of SQL Server by reading the state of PBM (Policy-Based Management) policies state for each of the objects. Beside system policies, this management pack provides the ability to monitor Custom User Policies defined for these facets:

- Availability Group
- Availability Replica
- Database Replica

For each facet, management pack introduces two monitors for Custom User Policy:

- Two-state monitor with 'Warning' state. This monitor is used for reflecting the state of Custom User Policy, which has one of the predefined warning categories as Policy Category.
- Two-state monitor with 'Error' state. This monitor is used for reflecting the state of Custom User Policy, which has one of the predefined error categories as Policy Category.

SQL Server Mirroring

This management pack enables the monitoring of Microsoft SQL Server Database Mirroring functionality. The following objects are automatically discovered:

- **SQL Server 2016 Mirroring Database** – represents a database, which is a part of a Database Mirroring configuration.

- **SQL Server 2016 Mirroring Witness** – represents a witness server, which is a part of a Database Mirroring configuration.
- **SQL Server 2016 Witness Role** – an object, which is discovered on every SQL Server instance, serving as a witness for a Database Mirroring configuration.
- **SQL Server 2016 Mirroring Group** – an object, which contains principal and mirror databases as well as their witness server.
- **SQL Server 2016 Mirroring Service** – a group, which contains all discovered Database Mirroring objects, does not have health.

The following health aspects are covered by monitoring:

Database Mirror and Witness Status – This monitoring scenario runs a query against the master database of the SQL Server instance and returns the state of the database.

Database Mirroring Partners Status – This monitoring scenario runs a query against the master database of the SQL Server instance and returns the state of the database mirroring session.

Memory-Optimized Data

This management pack enables the monitoring of Microsoft SQL Server 2016 Memory-Optimized Data. The following objects are automatically discovered:

- **Memory-Optimized Data Filegroup** – represents Memory-Optimized Data Filegroup object and contains all properties required for identification and monitoring.
- **Memory-Optimized Data Filegroup Container** – represents Memory-Optimized Data Container object and contains all properties required for identification and monitoring.
- **Default Resource Pool** – represents Default Resource Pool object and contains all properties required for identification and monitoring.
- **User Defined Resource Pool** – represents User Defined Resource Pool object and contains all properties required for identification and monitoring.

The following health aspects are covered by monitoring:

- **Memory-Optimized Data Filegroup Container Available Space** – reports a problem when the available disk space for the Memory-Optimized Data Filegroup Container is insufficient.
- **DB Memory-Optimized Data Filegroup Space** – reports about the problem if all Containers in a filegroup experience a lack of disk space.
- **Memory-Optimized Data Active File Pairs** – When there 8,000 CFPs are allocated, no new DML transactions can be executed on durable memory-optimized tables. Only checkpoint and merge operations are allowed to consume the remaining entries. This monitor reports about the problem if Active File Pairs count is close to limit.
- **Garbage Collection** – reports a Critical State and raises an alert if the amount of space used by active rows in Memory-Optimized Data files drops below the Threshold setting, expressed as a percentage of the size of data files. This monitor indicates a situation when merge process is not keeping up.
- **Memory Consumption** – reports a critical state and raises an alert when the amount of memory used by the resource pool is greater than the Threshold setting, expressed as a percentage of memory available for Memory-Optimized Data tables for the given resource pool. This scenario predicts Out Of memory situation.

The management pack also collects various performance metrics:

- A number of XTP performance metrics collected for SQL Server Instance.
- Space Monitoring Metrics for Memory-Optimized Data Container and Filegroup.
- Pool Memory Consumption metrics.
- Active CFPs files count.

Data File and Transaction Log File Space Monitoring

The management pack collects a set of metrics to enable the space monitoring at File, Filegroup and Database levels. You may use reports to review this information for multiple databases and for long time intervals.

This feature supports following types of media:

- Local storage (both drive letters and mount points)
- Cluster Shared Volumes
- SMB Shares
- Azure BLOBs

By default, space monitoring is enabled for all levels. Alerting is enabled for “**DB File Space (rollup)**” monitor, thus an alert will be registered only when all files in the filegroup are unhealthy. If your environment is sensitive for any extra load, you may consider disabling monitoring on Filegroup and File level.

Many Databases on the Same Drive

Space monitoring introduced by this management pack may be noisy in environments where many databases share the same media and have the **autogrowth** setting enabled. In such cases, an alert for each database is generated when the amount of free space on the hard drive reaches the threshold. To reduce the noise, turn off the space monitors for data and transaction log files, and use Operating System Management Pack to monitor space on the hard drive.

DB Storage Latency Monitoring

This management pack collects “DB Disk Read Latency (ms)” and “DB Disk Write Latency (ms)” performance metrics for each database. In addition, the management pack defines two associated monitors, which register alerts in case of significant performance degradation. These monitors are disabled by default. Enable these monitors only for specific DBs when necessary.

Long-Running SQL Server Agent Jobs

The management pack provides a “Long-running Jobs” monitor targeted to SQL Server Agent object. The monitor oversees all jobs running by SQL Server agent and changes the state when the duration of any job execution exceeds the threshold. An alert is also registered in this case.

Per-job monitoring is also available; however, the discovery for SQL Server Agent Jobs is disabled by default. In order to enable per-job monitoring, please override “Enabled” parameter for “**MSSQL 2016: Discover SQL Server 2016 Agent Jobs**” discovery.

You may also consider the “[Job Failure](#)” scenario for per-job failure monitoring.

Job Failure

To get alerts for failed jobs, enable the rule “**MSSQL 2016: A SQL job failed to complete successfully**” and make sure that the option “Write to the Windows Application Event Log” is set to “when the job fails” for all jobs you want to monitor.

For more information, see [Job Properties / New Job \(Notifications Page\) in the MSDN Library](#)

Monitoring of Custom User Policies

The management pack enables the monitoring of Custom User Policies (CUPs) by defining two monitors. These monitors are designed to check the state of CUPs defined for a “Database” facet:

- Two-state monitor with 'Warning' state. This monitor is used for reflecting the state of Custom User Policy, which has one of the predefined warning categories as Policy Category.
- Two-state monitor with 'Error' state. This monitor is used for reflecting the state of Custom User Policy, which has one of the predefined error categories as Policy Category.



Note

If the database is in **RESTORING** state, the Custom User Policy targeted to that database cannot be monitored.

Blocked Sessions

The management pack defines the “**Blocking Sessions**” monitor, which is designed to query each database for the session, which is blocked during a significant period. If blocking is detected and it exceeds the given threshold, then the state is changed and an alert is raised.

You can apply an override to change the **WaitMinutes** parameter, which is used to determine if the blocked session should be considered as long running or not. The default value for this parameter is **one minute**.

Restart of Database Engine

The availability of Database Engine is monitored by “**SQL Server Windows Service**” monitor (targeted to the “**SQL Server 2016 DB Engine**” object). This monitor recognizes the service as Stopped only if it appears to be stopped during several consecutive checks.

To be notified about all restart events of Database Engine, you can enable the rule “**MSSQL 2016: SQL Server 2016 DB Engine is restarted**”.

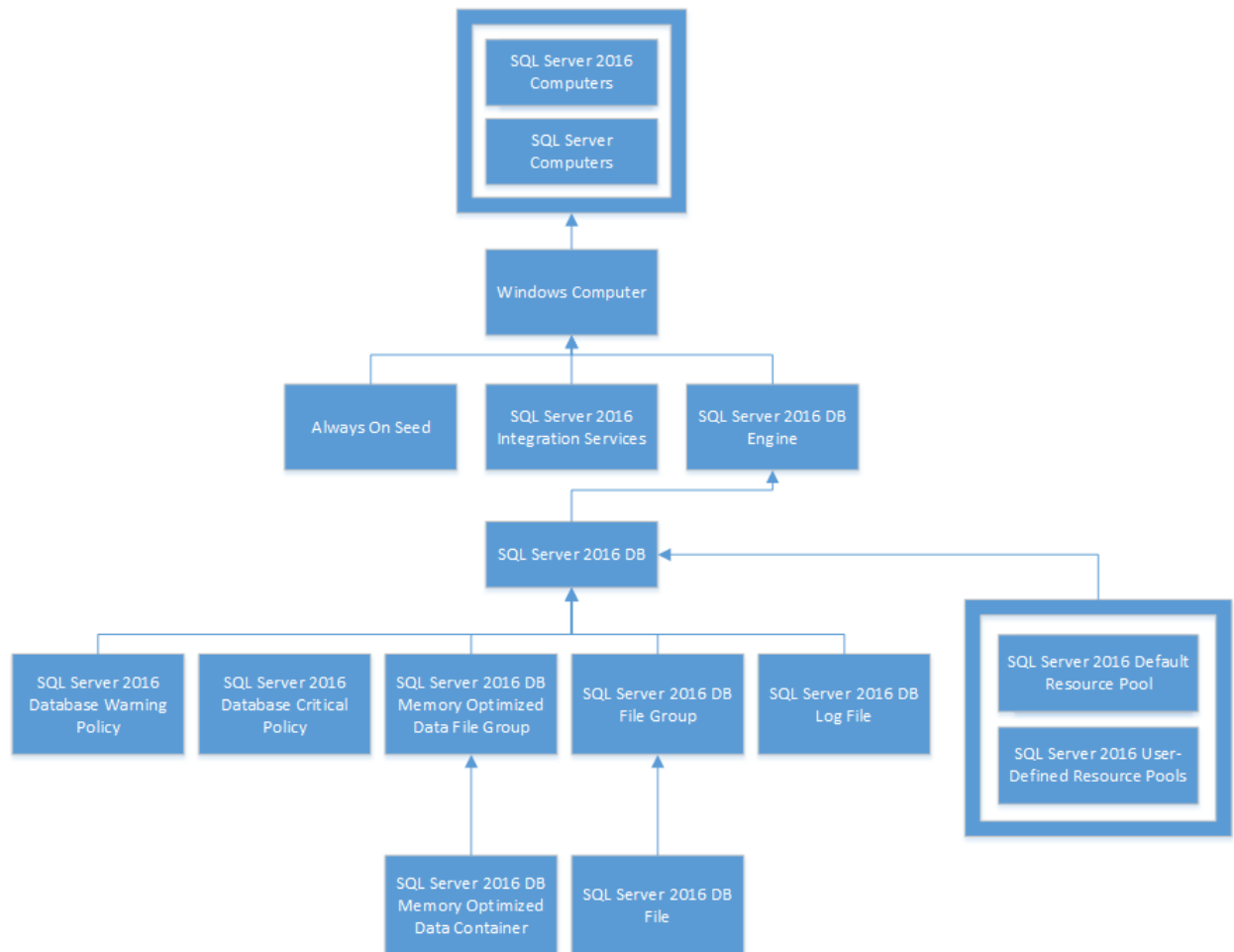
CPU Monitoring for SQL Server Database Engine

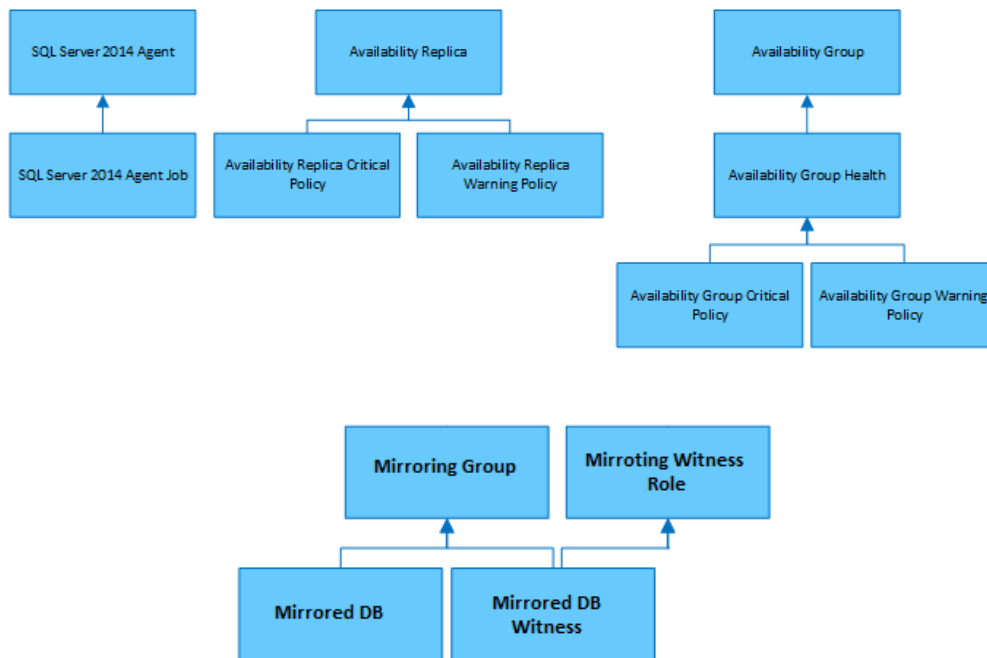
The CPU utilization is monitored by the “**CPU Utilization (%)**” monitor, which checks how many processors are actually working on SQL Server’s process threads and what is the current CPU utilization. The monitor raises an alert if all allocated CPUs are busy with processing SQL Server

tasks. This monitoring scenario takes into account current affinity mask of SQL Server Database Engine.

How Health Rolls Up

The following diagram shows how the health states of objects roll up in this management pack.





Configure the Management Pack for Microsoft SQL Server 2016

This section provides guidance on configuring and tuning this management pack.

In this section:

- [Best Practice: Create a Management Pack for Customizations](#)
- [How to Import a Management Pack](#)
- [How to Enable Agent Proxy Option](#)
- [How to Configure Run As Profile](#)
- [Security Configuration](#)
 - [Run As Profiles](#)
 - [Low-Privilege Environments](#)

Best Practice: Create a Management Pack for Customizations

The Management Pack for Microsoft SQL Server 2016 is sealed so that you cannot change any of the original settings in the management pack file. However, you can create customizations, such as overrides or new monitoring objects, and save them to a different management pack. By default, the Operations Manager saves all customizations to the default management pack. As a best practice, you should instead create a separate management pack for each sealed management pack you want to customize.

Creating a new management pack for storing overrides has the following advantages:

- When you create a management pack for the purpose of storing customized settings for a sealed management pack, it is helpful to base the name of the new management pack on the name of the management pack that it is customizing, such as “Microsoft SQL Server 2016 Overrides”.
- Creating a new management pack for storing customizations of each sealed management pack makes it easier to export the customizations from a test environment to a production environment. It also makes it easier to delete a management pack, because you must delete any dependencies before you can delete a management pack. If customizations for all management packs are saved in the Default Management Pack and you need to delete a single management pack, you must first delete the Default Management Pack, which also deletes customizations to other management packs.

For more information about management pack customizations and the default management pack, see [Using Management Packs](#) article.

How to Create a New Management Pack for Customizations

1. Open the Operations console, and then click the **Administration** button.
2. Right-click **Management Packs**, and then click **Create New Management Pack**.
3. Enter a name (for example, SQLMP Customizations), and then click **Next**.
1. Click **Create**.

How to Import a Management Pack

For more information about importing a management pack, see [How to Import a Management Pack](#) article.

How to Enable Agent Proxy Option

To enable **Agent Proxy option** complete following steps:

1. Open the Operations Console and click the **Administration** button.
2. In the Administrator pane, click **Agent Managed**.
3. Double-click an agent in the list.
4. On the Security tab, select **Allow this agent to act as a proxy and discover managed objects on other computers**.

Security Configuration

This section provides guidance on configuring the security for this management pack.

In this section:

- [Run As Profiles](#)

- [Low-Privilege Environments](#)
- [TLS 1.2 Protection](#)

Run As Profiles

When the Management Pack for Microsoft SQL Server 2016 is imported for the first time, it creates five new Run As profiles:

- Microsoft SQL Server 2016 Discovery Run As Profile – this profile is associated with all discoveries.
- Microsoft SQL Server 2016 Monitoring Run As Profile – this profile is associated with all monitors and rules.
- Microsoft SQL Server 2016 Task Run As Profile – this profile is associated with all tasks.
- Microsoft SQL Server 2016 SCOM SDK Run As Profile – this profile is used for running SQL 2016 MP workflows that need access to SCOM SDK.
- Microsoft SQL Server Visualization Library Run As Profile – this profile is associated with the visualization library.



Note

The last two Run As profiles are not used by SQL Server 2016 management pack, but they are provided as a part of shared Run As profiles 2016 management pack family.

By default, all discoveries, monitors, and tasks defined in the SQL Server management packs use accounts defined in the “Default Action Account” Run As profile. If the default action account for a given system does not have the necessary permissions to discover or monitor the instance of SQL Server, then those systems can be bound to more specific credentials in the “Microsoft SQL Server 2016” Run As profiles, which do have access.



Note

Please refer to “[Appendix: Run As Profiles](#)” section to identify discoveries, monitors, and rules associated with each **Run As Profile**.

One of the Run As Profile Configuration scenarios below — where we describe how to configure and use Service Security Identifier — was first published by Kevin Holman in his blog. The original article is available [here](#). The SQL scripts to configure the lowest-privilege access were also developed by Kevin.

How to Configure Run As Profiles

To configure Run As profiles, follow one of the scenarios described below:

1. Default Agent Action Account is mapped to Local System, and you are going to use Service Security Identifier (SID) to enable SQL Server MP Workflows to access SQL Server instances. You can read more about this option in [SQL Server uses a service SID to provide service isolation](#) and [How to configure SQL Server 2012 to allow for System](#)

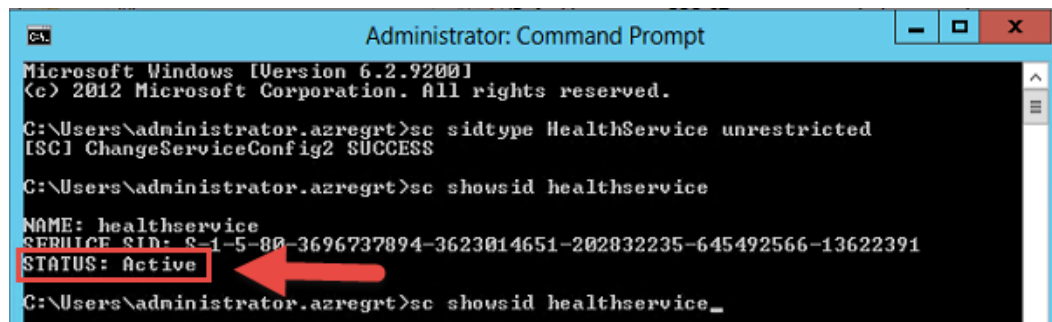
- [Center Advisor monitoring](#) articles. Follow the next steps to configure your security configuration with SID:
- a. Allow using a service SID for HealthService as it is described in [How to allow a Service Security Identifier for the HealthService](#).
 - b. If you have SQL Server Cluster instances, make sure to take the steps described in [How to Configure the HealthService Service SID for Monitoring SQL Server Cluster Instances](#) section.
 - c. Create the login “NT SERVICE\HealthService” for the HealthService SID in every SQL Server and grant it with the SQL Server System Administrator rights (hereinafter—SA rights). If you cannot grant it with the SA rights for the security policy reason, then skip this step and go to the next one.
 - d. Take this step only if you cannot take step “c”. Use the SQL scripts provided in [How to Grant the HealthService SID with the Minimal Required Rights to SQL Server](#) section to set up the lowest privilege configuration for the account.
2. Default Agent Action Account—mapped to either Local System or a domain account—has both Local Administrator rights on the operating system and SA rights. In this case, monitoring of SQL Server instances will work out of the box, except for some configurations described below. Please follow these steps to ensure that all requirements are met:
- a. In case when servers hosting Always On Availability Replicas (at least one of them) have the machine name longer 15 symbols, make sure to take steps described in [How to Configure Permissions for Always On Workflows when Servers Have Machine Names Longer than 15 Symbols](#) section.
 - b. If you store SQL Server databases on an SMB file share, make sure that Default Agent Action Account has the rights described in the corresponding [Low-Privilege Configuration](#) section.
3. Default Agent Action Account—mapped to either Local System or a domain account—cannot be granted with the SA rights, as long as the security policy prohibits granting the SA rights to the Default Agent Action Account. If the security policy permits to grant the SA rights to a separate Domain User account, which will be used for launching SQL Server MP Workflows only, perform the following steps:
- a. Create a new Domain User account and add this account to Local Administrators group on each monitored server.
 - b. Grant the SA rights to this account in SQL Server.
 - c. Create a new Action account in SCOM and map it to the Domain User account created above.
 - d. Map the new Action account to all SQL Server MP Run As Profiles.
 - e. While configuring SQL Server Always On Availability Groups for monitoring, despite granting Local Administrator rights to the new Action account, make sure this account has permissions described in [How to Configure Permissions for Always On Workflows when Servers Have Machine Names Longer than 15 Symbols](#) section.

- f. If you store SQL Server databases on an SMB file share, make sure that your Domain User account has the rights described in the corresponding [Low-Privilege Configuration](#) section.
4. In case you need to run SQL Server MP Workflows with the minimal required rights, follow the instructions in [Low-Privilege Environments](#) section.

How to Allow a Service Security Identifier for the HealthService

The steps below should be taken on every server hosting SQL Server to be monitored.

1. Open Command Prompt as Administrator and run “*sc sidtype HealthService unrestricted*” query; then, restart “Health Service”.
2. Open Command Prompt as Administrator and run the next query: “*sc showsid HealthService*”. The service “STATUS” should be “Active”:



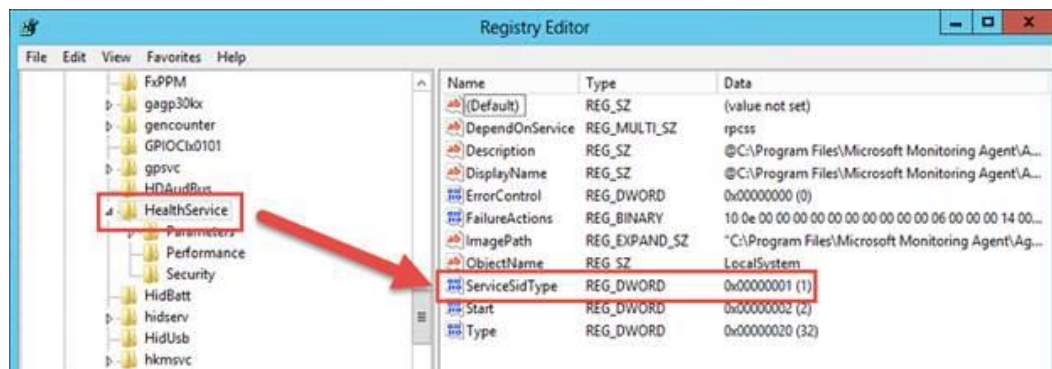
```
Administrator: Command Prompt
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.

C:\Users\administrator.azregt>sc sidtype HealthService unrestricted
ISC1 ChangeServiceConfig2 SUCCESS

C:\Users\administrator.azregt>sc showsid healthservice

NAME: healthservice
SERVICE_SID: S-1-5-80-3696737894-3623014651-202832235-645492566-13622391
STATUS: Active
C:\Users\administrator.azregt>sc showsid healthservice_
```

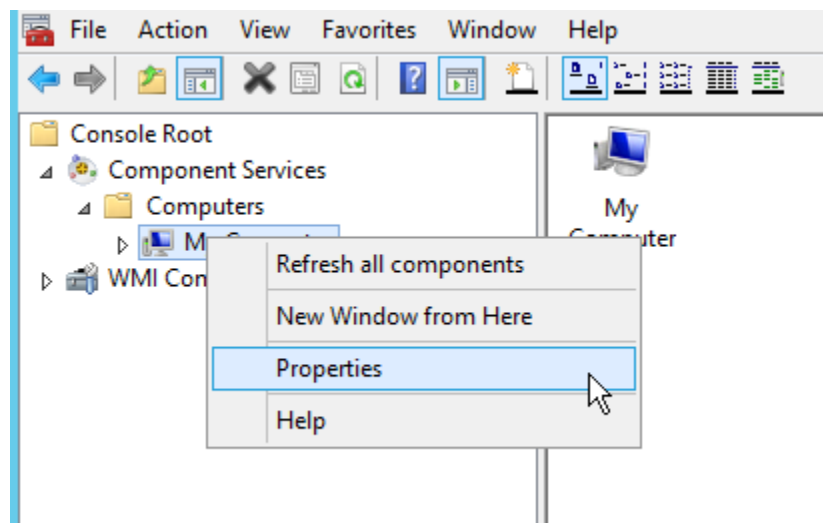
3. Open “Registry Editor”. Check that “ServiceSidType” key has “1” value at “*HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\HealthService*”.



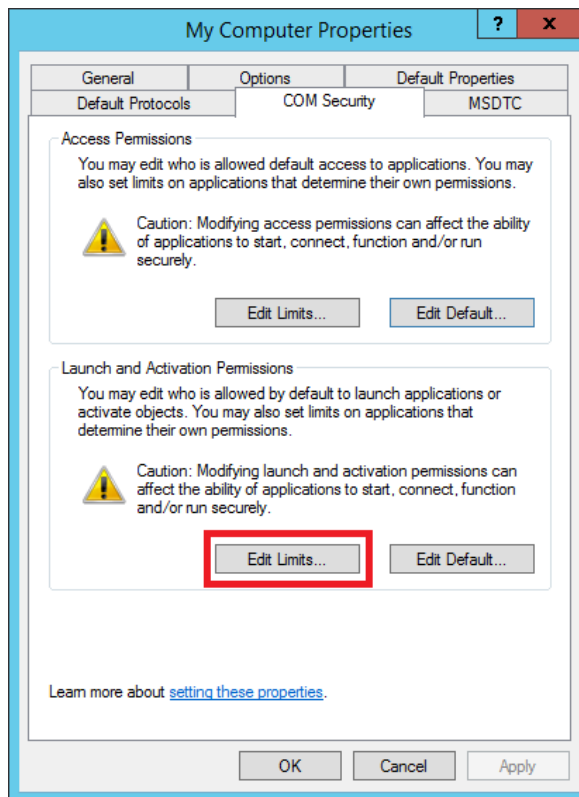
How to Configure the HealthService Service SID for Monitoring SQL Server Cluster Instances

To configure HealthService Service SID for monitoring SQL Server Failover Cluster, perform the following steps at each cluster node:

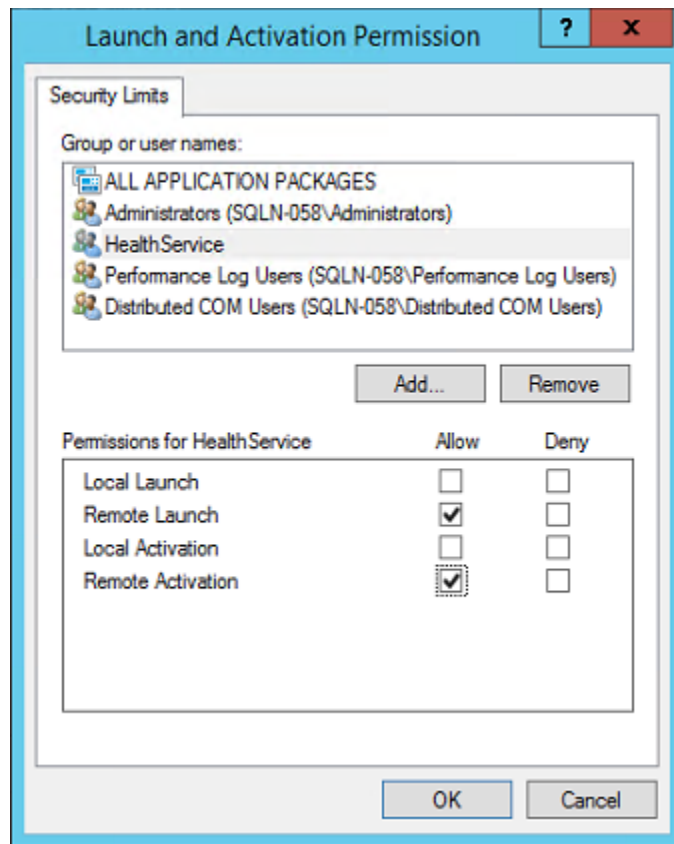
1. Launch mmc.exe and add the following two Snap-Ins:
 - **Component Services**
 - **WMI Control** (for local computer)
2. Expand **Component Services**, right-click **My Computer** and click **Properties**; the corresponding dialog menu will be displayed:



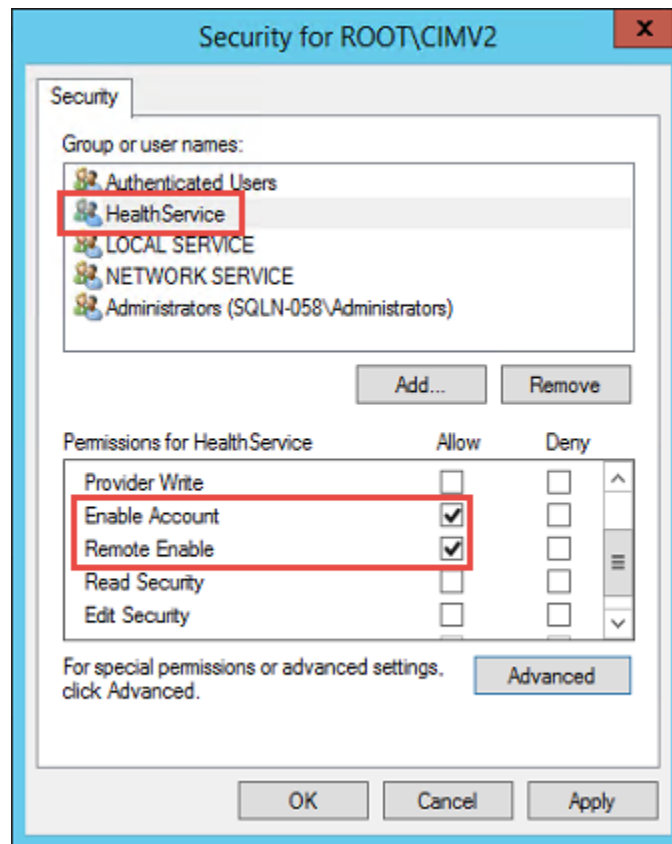
3. In this dialog menu, go to **Security** tab.
4. Click the **Edit Limits** button in **Launch and Activation Permissions** section; the corresponding dialog menu will be displayed:



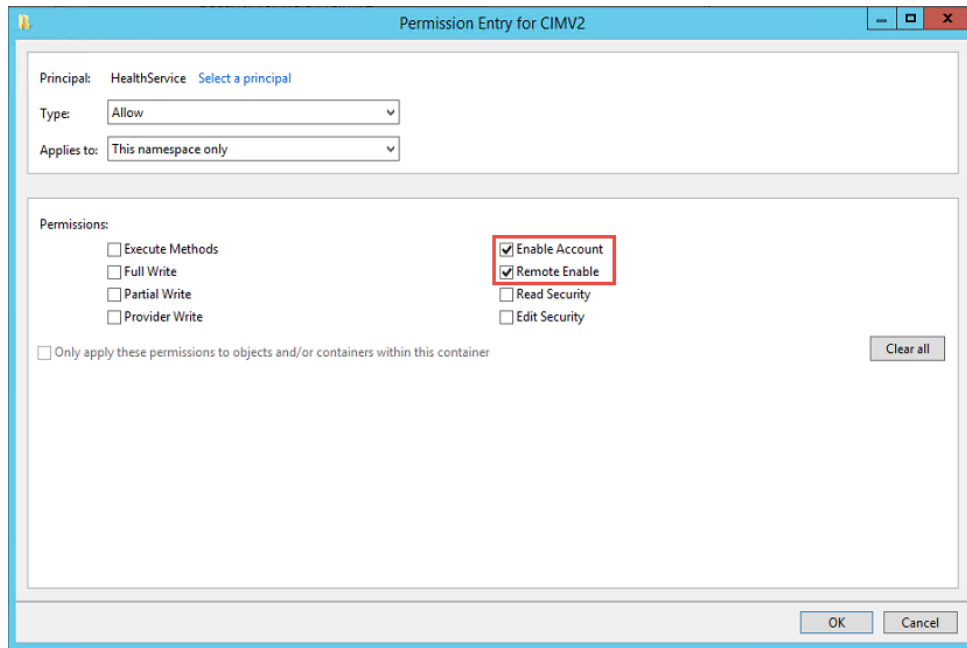
5. In this dialog menu, set the following permissions for the “NT SERVICE\HealthService” account:
- **Remote Launch**
 - **Remote Activation**



6. Go to **WMI Control** snap-In and call its properties; the corresponding dialog menu will be displayed.
7. In this dialog menu, go to **Security** tab, select **Root\CIMV2** namespace and click the **Security** button.
8. Add the following permissions for the "NT SERVICE\HealthService" account:
 - **Enable Account**
 - **Remote Enable**



9. Click the **Advanced** button; the corresponding dialog menu will be displayed.
10. In this dialog menu, select the "HealthService" account and click the **Edit** button.
11. In the following dialog menu, make sure that **Applies to** parameter is set to **This namespace only** value, and the following permissions are set:
 - **Enable Account**
 - **Remote Enable**



How to Grant the HealthService SID with the Minimal Required Rights to SQL Server

Run the following script with every SQL Server instance to be monitored:

```
SET NOCOUNT ON;
DECLARE @accountname nvarchar(128);
DECLARE @command1 nvarchar(MAX);
DECLARE @command2 nvarchar(MAX);
DECLARE @command3 nvarchar(MAX);
SET @accountname = 'NT SERVICE\HealthService';
SET @command1 = 'USE [master];
CREATE LOGIN [' + @accountname + '
FROM WINDOWS WITH DEFAULT_DATABASE=[master];';
SET @command2 = '';
SELECT @command2 = @command2 + 'USE [' + db.name + '];
CREATE USER [' + @accountname + '
FOR LOGIN [' + @accountname + '];'
FROM sys.databases db
left join sys.dm_hadr_availability_replica_states hadrstate
on db.replica_id = hadrstate.replica_id
WHERE db.database_id <> 2
AND db.user_access = 0
AND db.state = 0
AND db.is_read_only = 0
AND (hadrstate.role = 1 or hadrstate.role is null);
SET @command3 = 'USE [master];
GRANT VIEW ANY DATABASE TO [' + @accountname + '];
GRANT VIEW ANY DEFINITION TO [' + @accountname + '];
GRANT VIEW SERVER STATE TO [' + @accountname + '];
GRANT SELECT on sys.database_mirroring_witnesses to [' + @accountname + '];
```

```

USE [msdb];
EXEC sp_addrolemember @rolename='PolicyAdministratorRole',
@membername='''+@accountname+''';
EXEC sp_addrolemember @rolename='SQLAgentReaderRole',
@membername='''+@accountname+''';
EXECUTE sp_executesql @command1;
EXECUTE sp_executesql @command2;
EXECUTE sp_executesql @command3;

```

How to Configure Permissions for Always On Workflows when Servers Have Machine Names Longer than 15 Symbols

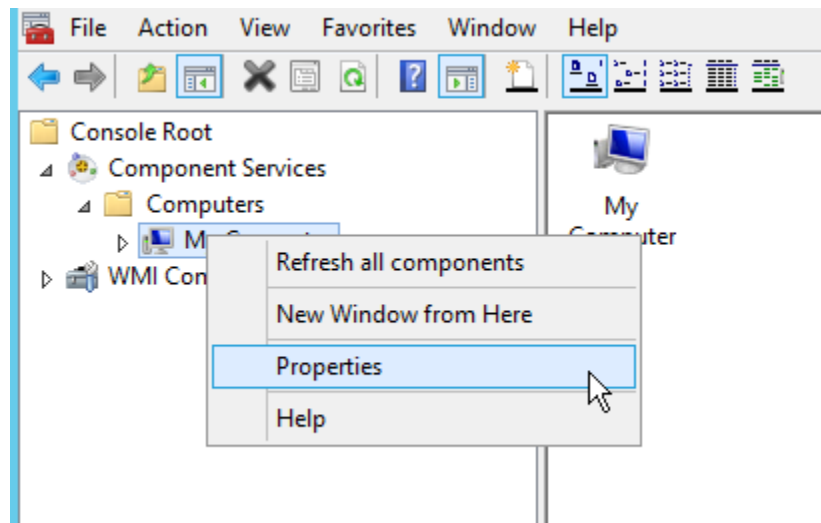
Please note that regardless of the used account (Local System or a Domain User account) and the method of rights granting, you should make sure that the account has the permissions listed below. The process of obtaining permissions is described below as a case when Local System account is used for monitoring.

Example: You have three replicas in your Availability Group, which are hosted on the following computers: comp1, comp2 and comp3. At that, comp1 hosts the primary replica. In this case, you should configure security settings for comp1 on comp2 and comp3 computers.

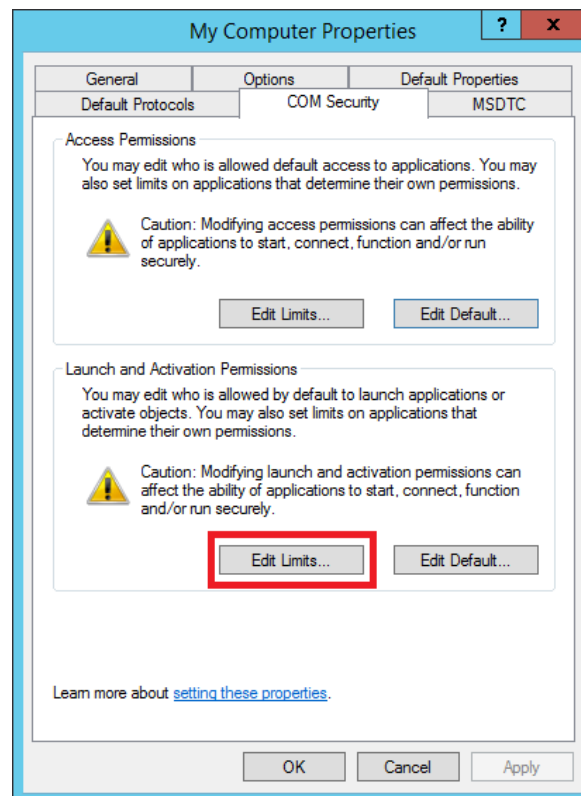
Note: If comp2 would host primary replica (after failover), other computers should also have configured WMI security for this computer. In general, you have to make sure that Local System account of each node, which can act as Primary one, have WMI permissions for the other nodes of the current Availability Group. The same is true for the Domain Action Account used for monitoring.

Therefore, below are the steps to configure security for configurations with Local System account (please note that in the provided instruction it is considered that SQLAON-020 computer hosts the primary replica).

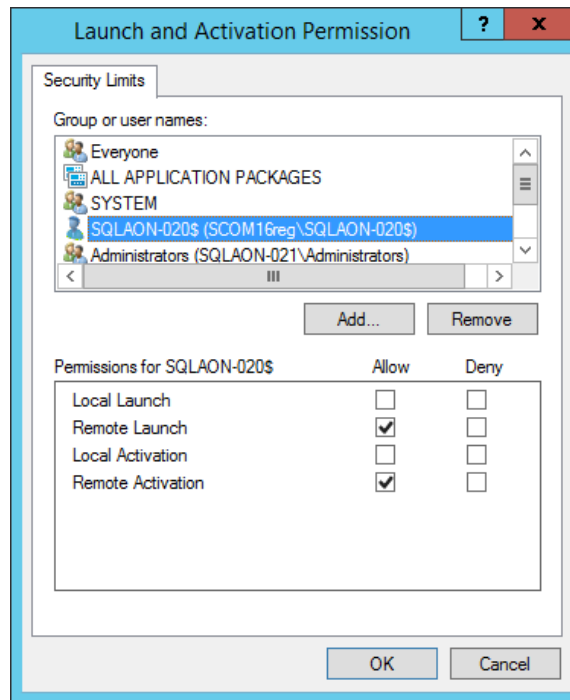
1. Launch mmc.exe and add two Snap-Ins:
 - **Component Services**
 - **WMI Control** (for local computer)
2. Expand **Component Services**, right-click **My Computer** and click **Properties**; the corresponding dialog menu will be displayed.



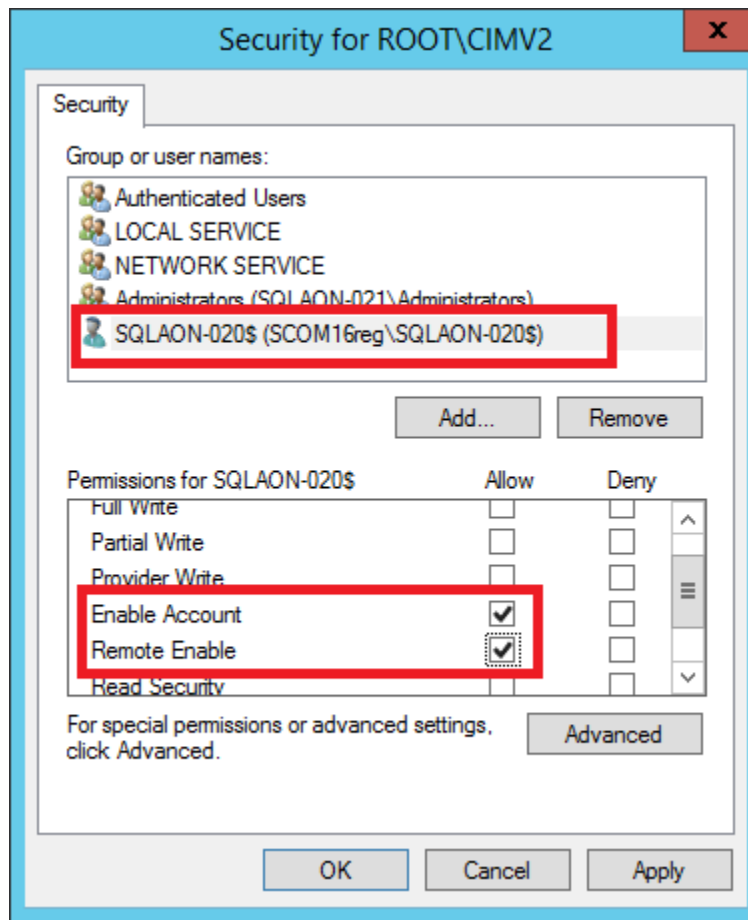
3. In this dialog menu, go to **Security** tab.
4. Click the **Edit Limits** button in **Launch and Activation Permissions** section; the corresponding dialog menu will be displayed.



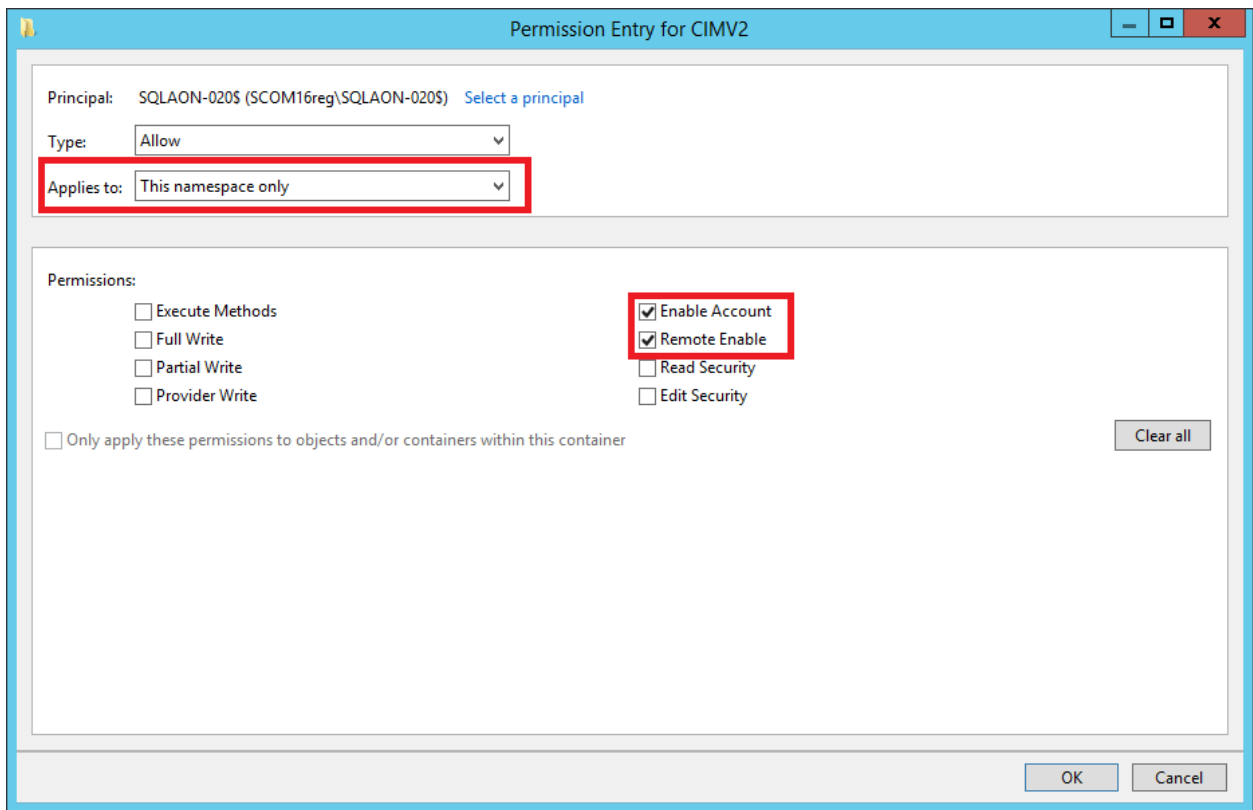
5. In this dialog menu, set the following permissions for the remote machine's account:
 - **Remote Launch**
 - **Remote Activation**



6. Go to **WMI Control** snap-In and call its properties; the corresponding dialog menu will be displayed.
7. In this dialog menu, go to **Security** tab, select **Root\CIMV2** namespace and click the **Security** button.
8. Add the following permissions for the target computer:
 - **Enable Account**
 - **Remote Enable**



9. Click the **Advanced** button; the corresponding dialog menu will be displayed.
10. In this dialog menu, select the target account and click the **Edit** button.
11. In the following dialog menu, make sure that **Applies to** parameter is set to **This namespace only** value, and the following permissions are set:
 - **Enable Account**
 - **Remote Enable**



Steps 1-11 should be performed on each replica participating in the target Availability Group.

Low-Privilege Environments

This section describes how to configure the Management Pack for Microsoft SQL Server 2016 for low-privilege access. All workflows (discoveries, rules, monitors, and actions) in this management pack are bound to Run As profiles described in “[Run As Profiles](#)” section. To enable low-privilege monitoring, appropriate permissions should be granted to Run As accounts and these accounts should bound to respective Run As profiles. Subsections below describe how to grant permissions at both Operating System and SQL Server level.



Note

Please refer to “[Run As Profiles](#)” section for the detailed explanation of what Run As profiles are defined in Management Pack for Microsoft SQL Server 2016.



Important

Low-privilege configuration is supported for non-clustered SQL Server 2016 environments and clustered instances of SQL Server 2016. Custom User Policy based monitoring is not supported in low-privilege mode.

Configure a Low-Privilege Environment in Active Directory

1. In Active Directory, create three domain users that will be commonly used for low-privilege access to all target SQL Server instances:
 - a. **SQLTaskAction**
 - b. **SQLDiscovery**
 - c. **SQLMonitor**
2. Create a domain group named **SQLMPLowPriv** and add the following domain users:
 - a. **SQLDiscovery**
 - b. **SQLMonitor**
3. Grant special permission: Read-only Domain Controllers – “Read Permission” to the **SQLMPLowPriv**

Configure a Low-Privilege Environment on the Agent Machine

- On the agent machine, add the **SQLTaskAction** and **SQLMonitor** domain users to the “Performance Monitor Users” local group.
- Add the **SQLTaskAction** and **SQLMonitor** domain users to “EventLogReaders” local group.
- Add the **SQLTaskAction** domain user and **SQLMPLowPriv** domain group as members to the local **Users** group.
- Configure the “Allow log on locally” local security policy setting to allow the **SQLTaskAction** domain user and **SQLMPLowPriv** domain group users to log on locally.
- Grant Read permission on “**HKLM:\Software\Microsoft\Microsoft SQL Server**” registry path for **SQLTaskAction** and **SQLMPLowPriv**.
- Grant “Execute Methods”, “Enable Account”, “Remote Enable”, “Read Security” permissions to **SQLTaskAction** and **SQLMPLowPriv** for these WMI namespaces:
 - **root**
 - **root\cimv2**
 - **root\default**
 - **root\Microsoft\SqlServer\ComputerManagement13**
- Grant Read permission on “**HKLM:\Software\Microsoft\Microsoft SQL Server\InstanceID\MSSQLServer\Parameters**” registry path for **SQLMPLowPriv** for each monitored instance.



Note

The monitoring account user must have the following permissions to 'C:\Windows\Temp' folder:

- Modify
- Read & Execute
- List Folder contents
- Read

- Write

Configure a Low-Privilege Environment on the Agent Machine in Cluster

1. For each node in a cluster, execute steps outlined in the section [Configure a Low-Privilege Environment on the Agent Machine](#).
2. Grant “Remote Launch” and “Remote Activation” DCOM permissions to the **SQLMPLowPriv**, **SQLTaskAction** using DCOMCNFG. Please note that both defaults and limits should be adjusted.
3. Allow Windows Remote Management through the Windows Firewall.
4. Grant “Read” access for the cluster to the **SQLMPLowPriv** using Failover Cluster Manager.
5. Grant “Execute Methods”, “Enable Account”, “Remote Enable”, “Read Security” permissions to **SQLTaskAction** and **SQLMPLowPriv** for this WMI namespace: **root\MSCluster**.

Configure a Low-Privilege Environment on the Instance Of SQLServer 2016 Database Engine

1. Open SQL Server Management Studio and connect to the instance of SQL Server 2016 Database Engine.
2. In SQL Server Management Studio, for each instance of SQL Server 2016 Database Engine running on a monitored server, create a login for “**SQLMPLowPriv**” and grant the following permissions:
 - a. VIEW ANY DEFINITION
 - b. VIEW SERVER STATE
 - c. VIEW ANY DATABASE
3. Create an **SQLMPLowPriv** user in each user database, master, msdb, and model. Link **SQLMPLowPriv** users to **SQLMPLowPriv** login. By adding the user into the model database, you will automatically create an **SQLMPLowPriv** user in each future user-created database. You will need to manually provision the user for any database that will be attached or restored in future.
4. For msdb database: add the **SQLMPLowPriv** user to the **SQLAgentReaderRole** database role.
5. For msdb database: add the **SQLMPLowPriv** user to the **PolicyAdministratorRole** database role.

Configure a Low-Privilege Environment on the Server, Which Hosts an SMB Share Used by SQL Server 2016 Database Engine

1. Grant share permissions by opening share properties dialog for the share, which hosts SQL Server data files or SQL Server transaction log files.
2. Grant Read permissions to **SQLMPLowPriv**.
3. Grant NTFS permissions by opening the properties dialog for the shared folder and navigate to the “Security” tab.
4. Grant Read permissions to **SQLMPLowPriv**.

Configure Instances Low-Privilege Task Action Account on the Instance of SQL Server 2016 Database Engine

1. Open SQL Server Management Studio and connect to the instance of SQL Server 2016 Database Engine.
2. In SQL Server Management Studio, for each instance of SQL Server 2016 Database Engine running on a monitored server, create a login for **SQLTaskAction** and grant the following permissions:
 - a. VIEW ANY DEFINITION
 - b. VIEW SERVER STATE
 - c. VIEW ANY DATABASE
3. Create an **SQLTaskAction** user in each user database, master, msdb, and model. Link **SQLTaskAction** users to **SQLTaskAction** login. By adding the user into the model database, you will automatically create an **SQLTaskAction** user in each future user-created database. You will need to manually provision the user for any database that will be attached or restored in future.
4. For msdb database: add an **SQLTaskAction** user to the **SQLAgentReaderRole** database role.
5. For msdb database: add the **SQLTaskAction** user to the **PolicyAdministratorRole** database role.
6. For configuring Mirroring under low-privilege, need to execute next code for each instance in Mirroring:

```
grant select on sys.database_mirroring_witnesses to  
[yourdomain\SQLMPLowPriv]  
go
```

Enable Execution of System Center Operations Manager Tasks for a Database Object

Some optional System Center Operations Manager tasks require a higher privilege on an agent machine and/or a database to allow the task execution.

You should execute the following provisioning steps on the agent machine or the database only if you want to allow the System Center Operations Manager console operator to take remedial actions on that target.

1. If the task is related to starting or stopping an NT service (such as DB Engine Service, SQL Server Agent service, SQL Full Text Search Service, Integration Services): on the agent machine, grant the **SQLTaskAction** user permission to start or stop an NT service. This involves setting a service's security descriptor. For more information, see [Sc sdset](#).
Read the existing privileges for a given service (using **sc sdshow**) and then grant additional privileges to the **SQLTaskAction** user for that server.
For example, suppose the results of the **sc sdshow** command for SQL Server service are as follows:

```
D:(A;;CCLCSWRPWPDTLOCRRC;;;SY)(A;;CCDCLCSWRPWPDTLOCRSDRCWDWO;;;B
A)(A;;CCLCSWLOCRRRC;;;IU)(A;;CCLCSWLOCRRRC;;;SU)S:(AU;FA;CCDCLCSWRPWP
DTLOCRSDRCWDWO;;;WD)
```

In this case, the following command line grants sufficient access to **SQLTaskAction** for starting and stopping the SQL Server service (please replace colored strings with appropriate values and keep everything on a single line of text):

```
sc sdset SQLServerServiceName D:(A;;GRRPWP;;;SID for
SQLTaskAction)(A;;CCLCSWRPWPDTLOCRRC;;;SY)(A;;CCDCLCSWRPWPDTLOCRSD
RCWDWO;;;BA)(A;;CCLCSWLOCRRRC;;;IU)(A;;CCLCSWLOCRRRC;;;SU)S:(AU;FA;CCDC
LCSWRPWPDTLOCRSDRCWDWO;;;WD)
```

2. In SQL Server Management Studio, add **SQLTaskAction** to db_owner database role for each database if the task is related to performing database checks:
 - a. "Check Catalog (DBCC)"
 - b. "Check Database (DBCC)"
 - c. "Check Disk (DBCC)" (invokes DBCC CHECKALLOC)
3. Grant the ALTER privilege to **SQLTaskAction** for each database if the task is related to changing the database state:
 - a. "Set Database Offline"
 - b. "Set Database Emergency State"
4. Grant the ALTER ANY DATABASE privilege to **SQLTaskAction** login to run the task if the task is "Set Database Online".

Configure System Center Operations Manager

1. Import the SQL Server Management Pack if it has not been imported.
2. Create an **SQLTaskAction**, **SQLDiscovery** and **SQLMonitor** Run As accounts with "Windows" account type. For more information about how to create a Run As account, see [How to Create a Run As Account in Operations Manager 2007](#) or [How to Create Run As Account in Operations Manager 2012](#). For more information about various Run As Account types, see [Run As Accounts and Run As Profiles in Operations Manager 2007](#) or [Managing Run As Accounts and Profiles in Operations Manager 2012](#).
3. On the System Center Operations Manager console, configure the Run As profiles for the SQL Server Management Pack as follows:
 - a. Set the "Microsoft SQL Server 2016 Task Action Run As Profile" Run As profile to use the **SQLTaskAction** Run As account.
 - b. Set the "Microsoft SQL Server 2016 Discovery Run As Profile" Run As profile to use the **SQLDiscovery** Run As account.
 - c. Set the "Microsoft SQL Server 2016 Monitoring Run As Profile" Run As profile to use the **SQLMonitor** Run As account.

Sample Code

Provision the **SQLMPLowPriv** login on an instance of SQL Server 2016:

```

use master
go

create login [yourdomain\SQLMPLowPriv] from windows
go

grant view server state to [yourdomain\SQLMPLowPriv]
grant view any definition to [yourdomain\SQLMPLowPriv]
grant view any database to [yourdomain\SQLMPLowPriv]
grant select on sys.database_mirroring_witnesses to [yourdomain\SQLMPLowPriv]
go

```

The following code shows how to generate a Transact-SQL provisioning script. The generated script provisions the **SQLMPLowPriv** user in all existing user databases and in the model database (thus automating the provisioning in future databases).



Important

You need to output the results of this query in text format.

```

SELECT 'use ' + name + ' ;'
+ char(13) + char(10)
+ 'create user [yourdomain\SQLMPLowPriv] FROM login [yourdomain\SQLMPLowPriv];'
+ char(13) + char(10) + 'go' + char(13) + char(10)
FROM sys.databases WHERE database_id = 1 OR database_id >= 3
UNION
SELECT 'use msdb; exec sp_addrolemember @rolename='SQLAgentReaderRole'',
@membername='yourdomain\SQLMPLowPriv''
+ char(13) + char(10) + 'go' + char(13) + char(10)
UNION
SELECT 'use msdb; exec sp_addrolemember @rolename='PolicyAdministratorRole'',
@membername='yourdomain\SQLMPLowPriv''
+ char(13) + char(10) + 'go' + char(13) + char(10)

```

TLS 1.2 Protection

Operating protection of connections in SQL Server is provided by means of TLS protocol. In order to have the ability to use TLS 1.2 protocol, your environment should meet the following prerequisites:

1. SQL Server should be updated to a version that supports TLS 1.2.
2. The following SQL Server drivers should be updated to a version that supports TLS 1.2:
 - SQL Server Native Client <version>
 - ODBC Driver 11 for Microsoft SQL Server
3. Make sure that your environment meets the prerequisites provided in the table below:

OS Version	SCOM Version	.NET Version	PowerShell version
Windows 2012 and above	Not less than minimal supported version**	From 2.0 to 4.0 with TLS 1.2 update* and from 4.0 to 4.6 with TLS 1.2 update*	3.0+
Windows 2012 and above	Not less than minimal supported version**	From 2.0 to 4.0 with TLS 1.2 update* and 4.6+	3.0+
Windows 2008 R2 and below	SCOM 2012 SP1 UR10 + SCOM 2012 R2 UR7 +	From 2.0 to 4.0 with TLS 1.2 update* and 4.6+	2.0+
Windows 2008 R2 and below	SCOM 2012 SP1 UR10 + SCOM 2012 R2 UR7 +	From 2.0 to 4.0 with TLS 1.2 update* and from 4.0 to 4.6 with TLS 1.2 update*	2.0+
Windows 2008 R2 and below	From minimal supported version** to SCOM 2012 SP1 UR9 or to SCOM 2012 R2 UR6	From 2.0 to 4.0 with TLS1.2 update*	2.0

* .NET Framework TLS 1.2 updates can be downloaded from [TLS 1.2 Support for Microsoft SQL Server](#) page (**Client component downloads** section).

** Minimal supported SCOM versions are stated in Supported Configurations section.

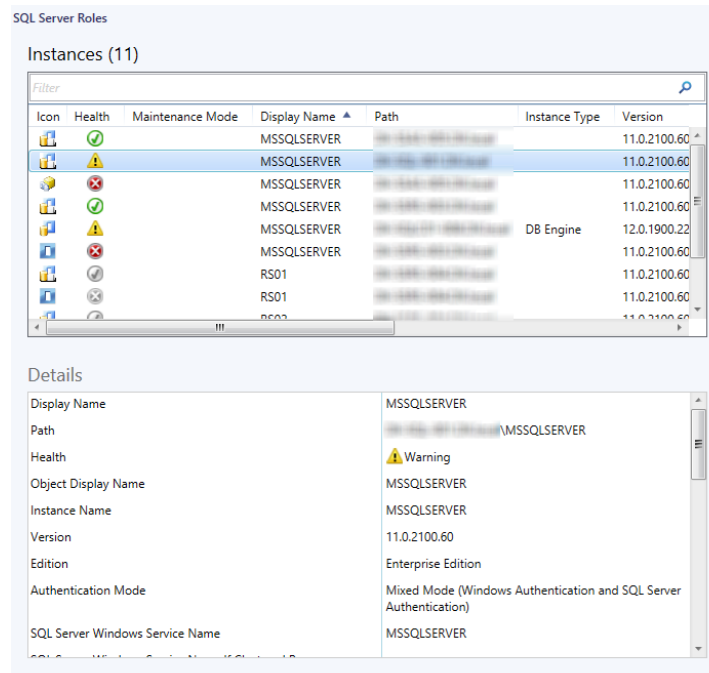
View Information in the Operations Manager Console

Version-Independent (Generic) Views and Dashboards

This management pack introduces common folder structure, which will be used by future releases of management packs for different components of SQL Server. Following views and dashboards are version-independent and show information about all versions of SQL Server:

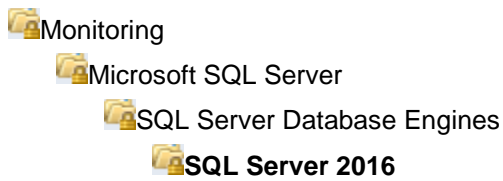
- Microsoft SQL Server
 - Active Alerts
 - SQL Server Roles
 - Summary
 - Computers
 - Task Status

“SQL Server Roles” dashboard provides an information about all instances of SQL Server Database Engine, SQL Server Reporting Services, SQL Server Analysis Services and SQL Server Integration Services:



SQL Server 2016 Views

The Management Pack for Microsoft SQL Server 2016 introduces the comprehensive set of state, performance and alert view, which can be found in the dedicated folder:

**Note**

Please refer to “[Appendix: Management Pack Views and Dashboards](#)” section of this guide for the full list of views.

**Note**

Some views may contain a very long list of objects or metrics. To find a specific object or group of objects, you can use the **Scope**, **Search**, and **Find** buttons on the Operations Manager toolbar. For more information, see “[Finding Data and Objects in the Operations Manager consoles](#)” article in the Operations Manager Help.

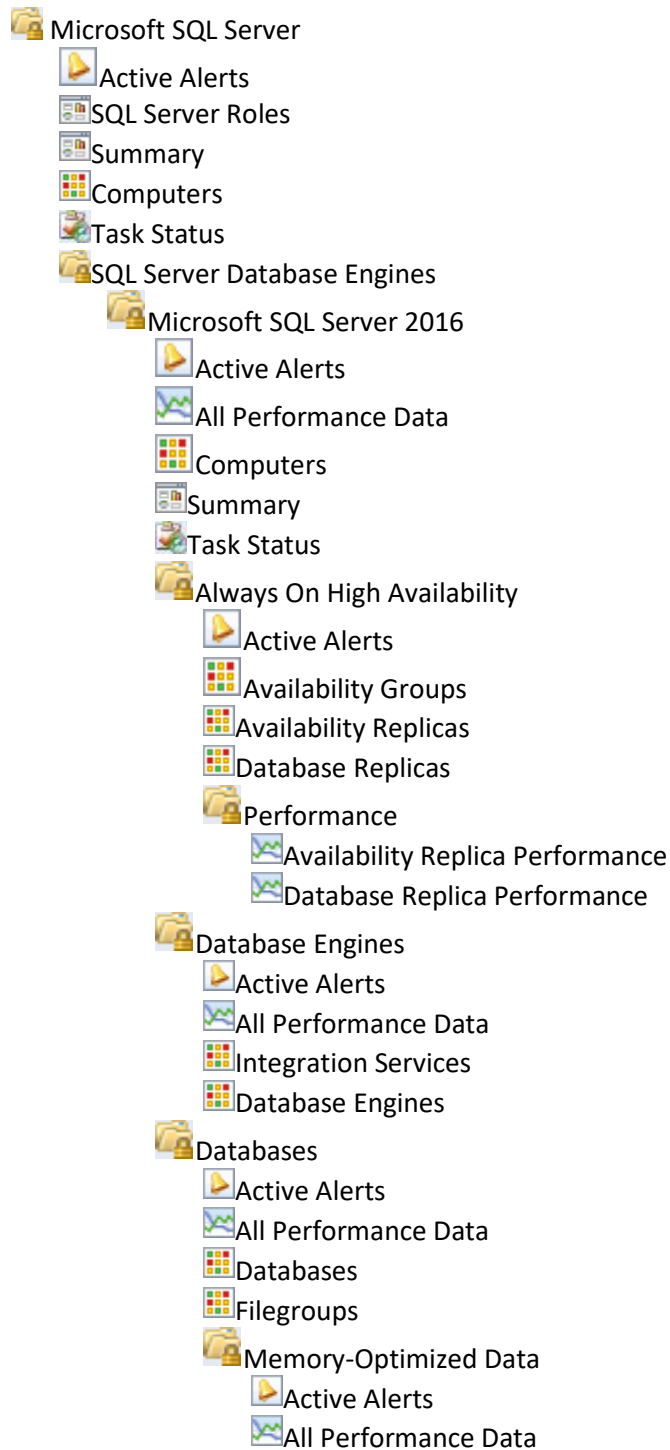
Dashboards

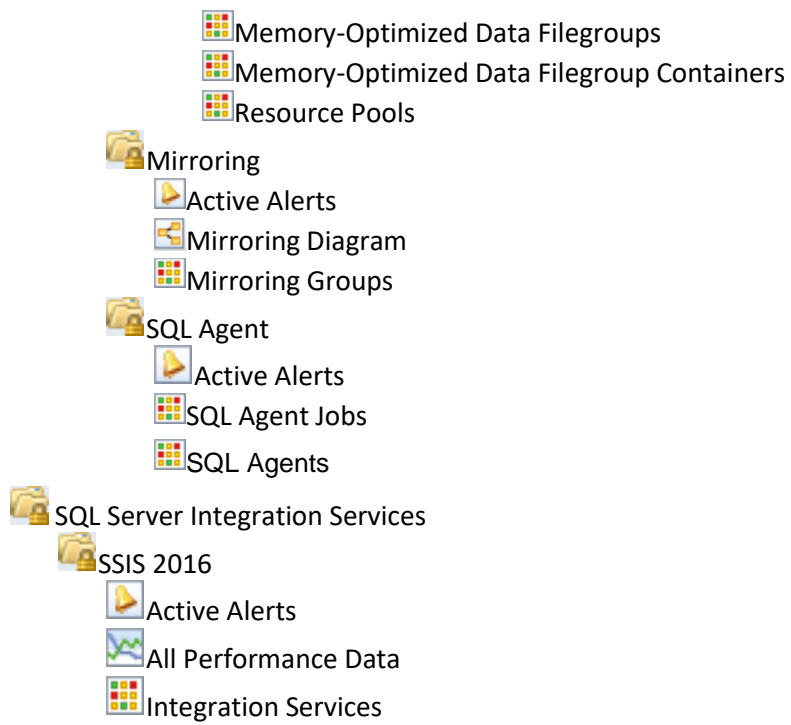
This management pack includes a set of rich dashboards, which provide detailed information about SQL Server 2016 Database Engines (Instances) and Databases.

**Note**

For detailed information, see SQL Server Dashboards guide.

Appendix: Management Pack Views and Dashboards





Appendix: Management Pack Objects and Workflows

The Management Pack for Microsoft SQL Server 2016 discovers the object types described in the following sections. Not all of the objects are automatically discovered. Use overrides to discover those objects that are not discovered automatically.

[Deprecated] SQL Server 2016 Memory-Optimized Data Instances Group

A group containing all instances of Microsoft SQL Server 2016 database engines supporting Memory-Optimized Data feature. This group is considered to be obsolete in this Management Pack.

[Deprecated] SQL Server 2016 Memory-Optimized Data Instances Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Memory-Optimized Data Instances Group](#)

This discovery rule populates the SQL Server 2016 Memory-Optimized Data Instances Group with all SQL Server 2016 DBEngines supported Memory-Optimized Data feature.

MSSQL 2016: Alerts Scope Group L3

This object is used to collect alerts.

MSSQL 2016: Alerts Scope Group L3 - Discoveries

[MSSQL 2016: Alerts Scope Group L3 Discovery](#)

This object discovery populates the Alerts Scope group to contain all SQL Server Roles.

[MSSQL 2016: Alerts Scope Group L3 Discovery](#)

This object discovery populates the Alerts Scope group L3 to contain all SQL Availability Groups.

MSSQL 2016: Always On Seed

This object indicates that the particular server computer contains Microsoft SQL Server 2016 installation with some Always On components enabled.

MSSQL 2016: Always On Seed - Discoveries

[MSSQL 2016: Always On Seed Discovery](#)

This discovery is used to define which machines have Always On enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Frequency in seconds	14400
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MSSQL 2016: Always On Seed - Rules (alerting)

MSSQL 2016: Always On monitoring script failed rule

This rule detects event Id 4212 and creates an alert

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Availability Database

This object represents Availability Database object.

MSSQL 2016: Availability Database - Discoveries

MSSQL 2016: Database Replicas Always On Discovery

Discovery of database replica Always On objects

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Database - Dependency (rollup) monitors

Availability Database Backup Status (rollup)

This monitor is a dependency (rollup) monitor. The monitor checks availability of a full database backup and its age as reported by Microsoft SQL Server; it does not apply any logic regarding the replicas preferred for the backup.

MSSQL 2016: Availability Database Health

A hidden object, which is used to roll up the health from agents to availability database level.

MSSQL 2016: Availability Database Health - Discoveries

MSSQL 2016: Database Replicas Always On Discovery

Discovery of database replica Always On objects

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Database Health - Unit monitors

Availability Database Backup Status

The monitor checks availability of a full database backup and its age as reported by Microsoft SQL Server; it does not apply any logic regarding the replicas preferred for the backup.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	False
Backup Period (days)	The target backup frequency in days. Should be set according to your Recovery Point Objective (RPO).	7
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	86400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	

Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
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MSSQL 2016: Availability Group

This object represents Availability Group SMO object and contains all properties required for identification and monitoring.

MSSQL 2016: Availability Group - Discoveries

MSSQL 2016: General Always On Discovery

Discovery of Always On objects

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Group - Dependency (rollup) monitors

Synchronous Replicas Data Synchronization (rollup)

This monitor rolls up the data synchronization state of all availability replicas and checks whether any availability replica is not in the expected synchronization state. The monitor is unhealthy when any asynchronous replica is not in SYNCHRONIZING state and any synchronous replica is not in SYNCHRONIZED state. The monitor state is healthy otherwise. This monitor is a dependency (rollup) monitor.

Availability Group Automatic Failover (rollup)

This monitor checks if the availability group has at least one secondary replica which is failover ready. The monitor becomes unhealthy and alert is registered when the failover mode of primary replica is automatic but none of secondary replica in the availability group is automatic failover ready. The monitor is healthy when at least one secondary replica is automatic failover ready. This monitor is a dependency (rollup) monitor.

Availability Group Extended Health State (rollup)

This is the rollup monitor for all extended health monitors. Extended health monitors are automatically generated by discovering the existing health policies in SQL server instances.

Availability Group Online (rollup)

This monitor checks the online or offline state of availability group. The monitor is in unhealthy state and alert is raised when the availability group's cluster resource is offline or the availability group does not have a primary replica. The monitor state is healthy when the cluster resource of availability group is online and the availability group has a primary replica. This monitor is a dependency (rollup) monitor.

WSFC Cluster (rollup)

This monitor checks the state of Windows Server Failover Cluster (WSFC) service. This monitor is a dependency (rollup) monitor.

Availability Replicas Connection (rollup)

This monitor rolls up the connection state of all availability replicas and check whether any availability replica is DISCONNECTED. The monitor is unhealthy when any availability replica is DISCONNECTED. The monitor is healthy otherwise. This monitor is a dependency (rollup) monitor.

Availability Databases Performance

Rolls up all Availability Databases performance monitors to the Availability Group.

Availability Databases Configuration

Rolls up all Availability Databases configuration monitors to the Availability Group.

Availability Databases Security

Rolls up all Availability Databases security monitors to the Availability Group.

Availability Replicas Role (rollup)

This monitor rolls up the state of role of all availability replicas and checks whether any availability replica is not in a healthy role. The monitor is unhealthy when any availability replica is neither primary nor secondary. The monitor is healthy state otherwise. This monitor is a dependency (rollup) monitor.

Availability Replicas Data Synchronization (rollup)

This monitor rolls up the data synchronization state of all availability replicas in the availability group and check whether any availability replica's synchronization is not operational. The monitor is unhealthy if any of availability replica's data synchronization state is NOT

SYNCHRONIZING. The monitor is healthy when none of availability replica's data synchronization state is NOT SYNCHRONIZING. This monitor is a dependency (rollup) monitor.

Availability Databases Availability

Rolls up all Availability Databases availability monitors to the Availability Group.

MSSQL 2016: Availability Group - Console Tasks

SQL Server PowerShell

Open SQLPS console and connect to Primary Replicas of target Availability Group.

SQL Server Management Studio

Open SQL Server Management Studio and connect to Primary Replica of target Availability Group.

MSSQL 2016: Availability Group Critical Policy

Custom User Policy, which has Availability Group as Facet and one of the error categories as Policy Category.

MSSQL 2016: Availability Group Critical Policy - Discoveries

MSSQL 2016: General Custom User Policy Discovery

Discovery of Custom User Policies for Always On objects. Note: this discovery is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Group Critical Policy - Unit monitors

Availability Group Health Policy

Two state monitor with 'Error' critical state used particularly for reflecting state of Custom User Policies which have Availability Group as Facet and one of the predefined error categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Group Health

A hidden object, which is used to roll up the health from agents to availability group level.

MSSQL 2016: Availability Group Health - Unit monitors

Availability Group Online monitor

Availability Group Online

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Replicas Data Synchronization monitor

Availability Replicas Data Synchronization

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Replicas Role monitor

Availability Replicas Role

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Group Automatic Failover monitor

Availability Group Automatic Failover

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Replicas Connection monitor

Availability Replicas Connection

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

WSFC Cluster monitor

This monitor checks the state of Windows Server Failover Cluster (WSFC) service. The monitor is unhealthy and alert is raised when the cluster is offline or in the forced quorum state. (All availability groups hosted within this cluster are offline or the disaster recovery action is required). Monitor state is healthy when the cluster state is in the normal quorum.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
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Synchronous Replicas Data Synchronization monitor

Synchronous Replicas Data Synchronization

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Group Health - Aggregate monitors

Availability Group Extended Health State

Availability Group Extended Health Aggregate State monitor

MSSQL 2016: Availability Group Health - Dependency (rollup) monitors

Availability Group Warning Policies (rollup)

This monitor is the rollup monitor for all Custom User Policies which have Availability Group as Facet and one of the predefined warning categories as Policy Category.

Availability Group Critical Policies (rollup)

This monitor is the rollup monitor for all Custom User Policies which have Availability Group as Facet and one of the predefined error categories as Policy Category.

MSSQL 2016: Availability Group Warning Policy

Custom User Policy which has Availability Group as Facet and one of the warning categories as Policy Category.

MSSQL 2016: Availability Group Warning Policy - Unit monitors

Availability Group Health Policy

Two state monitor with 'Warning' critical state used particularly for reflecting state of Custom User Policies which have Availability Group as Facet and one of the predefined warning categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Replica

This object represents Availability Replica SMO object and contains all properties required for identification and monitoring.

MSSQL 2016: Availability Replica - Unit monitors

Availability Replica Connection

This monitor checks the connection state between availability replicas. The monitor is unhealthy when the availability replica's connection state is DISCONNECTED. The monitor is healthy otherwise.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run	300

	before being closed and marked as failed.	
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Availability Replica Data Synchronization

This monitor rolls up the data synchronization state of all database replica in the availability replica. The monitor is unhealthy when any database replica is not in the expected data synchronization state. The monitor is healthy otherwise.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Replica Join State

This monitor checks the join state of availability replica. The monitor is unhealthy when the availability replica is added to the availability group but not joined properly. The monitor is healthy otherwise.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Replica Role

This monitor checks the state of role of availability replica. The monitor is unhealthy when the availability replica's role is not primary or secondary. The monitor is healthy otherwise.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Replica - Aggregate monitors

Availability Replica Extended Health State

Availability Replica Extended Health Aggregate State monitor

MSSQL 2016: Availability Replica - Dependency (rollup) monitors

Availability Replica Critical Policies (rollup)

This monitor is the rollup monitor for all Custom User Policies which have Availability Replica as Facet and one of the predefined error categories as Policy Category.

Availability Replica Warning Policies (rollup)

This monitor is the rollup monitor for all Custom User Policies which have Availability Replica as Facet and one of the predefined warning categories as Policy Category.

MSSQL 2016: Availability Replica - Rules (alerting)

MSSQL 2016: Availability Group Failed

This error occurs when the local availability replica of availability group is in "Failed" state.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Availability Replica Role Changed

This error occurs when Availability replica changes its role.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Availability Replica - Rules (non-alerting)

MSSQL 2016: Resent Messages / sec

The rate per second to get acknowledgements for messages sent to the replica

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Bytes Sent to Transport / sec

The total number of bytes send over the network to the replica

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Bytes Received from Replica / sec

Total number of bytes received from this replica over the network for the AG

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Sends to Transport / sec

Number of messages sent over the network to this replica. This account for all the messages sent from this replica including control messages.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Bytes Sent to Replica / sec

The number of database message bytes enqueued to be send over the network to this replica. The bytes include messages for all databases in the AG.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Receives from Replica / sec

Total number of messages received from this replica for the AG

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Flow Control Time (ms/sec)

The number of milliseconds flow control was enabled to this replica within the last second

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Flow Control / sec

Number of flow controls enabled for this replica per second

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Sends to Replica / sec

Number of messages enqueued to be send over the network to this replica

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Availability Replica - Console Tasks

SQL Server Management Studio

Open SQL Server Management Studio and connect to target Availability Replica.

SQL Server PowerShell

Open SQLPS console and connect to target Availability Replica.

Forced Failover

Open SQLPS console and fail over to target Availability Replica that will make this replica to the new primary of availability group. In this task -AllowDataLoss parameter is used.

Manual Failover

Open SQLPS console and fail over to target Availability Replica that will make this replica to the new primary of availability group.

MSSQL 2016: Availability Replica Critical Policy

Custom User Policy which has Availability Replica as Facet and one of the error categories as Policy Category.

MSSQL 2016: Availability Replica Critical Policy - Unit monitors

Availability Replica Health Policy

Two state monitor with 'Error' critical state used particularly for reflecting state of Custom User Policies which have Availability Replica as Facet and one of the predefined error categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Availability Replica Warning Policy

Custom User Policy which has Availability Replica as Facet and one of the warning categories as Policy Category.

MSSQL 2016: Availability Replica Warning Policy - Unit monitors

Availability Replica Health Policy

Two state monitor with 'Warning' critical state used particularly for reflecting state of Custom User Policies which have Availability Replica as Facet and one of the predefined warning categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run	300

	before being closed and marked as failed.	
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MSSQL 2016: Database Replica

This is representation of Database Replica State SMO object

MSSQL 2016: Database Replica - Discoveries

MSSQL 2016: Database Replicas Always On Discovery

Discovery of database replica Always On objects

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Database Replica - Unit monitors

Availability Database Join State

This monitor checks the join state of database replica. The monitor is unhealthy when the database replica is not joined. The monitor is in healthy state otherwise.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Database Suspension State

This monitor checks the state of data movement of the database replica. The monitor is unhealthy when the data movement is suspended. The monitor is healthy otherwise.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Availability Database Data Synchronization

This monitor checks the data synchronization state of database replica. The monitor is unhealthy when the data synchronization state is NOT SYNCHRONIZING or the state is not SYNCHRONIZED for synchronous commit database replica.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Database Replica - Aggregate monitors

Database Replica Extended Health State

Database Replica Extended Health Aggregate State monitor

MSSQL 2016: Database Replica - Dependency (rollup) monitors

Database Replica Warning Policies (rollup)

This monitor is the rollup monitor for all Custom User Policies which have Database Replica State as Facet and one of the predefined warning categories as Policy Category.

Database Replica Critical Policies (rollup)

This monitor is the rollup monitor for all Custom User Policies which have Database Replica State as Facet and one of the predefined error categories as Policy Category.

MSSQL 2016: Database Replica - Rules (alerting)

MSSQL 2016: Database Replica Role Changed

This error occurs when Database replica changes its role.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Database Replica - Rules (non-alerting)

MSSQL 2016: Log Bytes Received / sec

The number of log bytes received by this replica. This is valid only on the secondary

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Mirrored Write Transactions / sec

The number of transactions processed through synchronization commits. Dividing transaction delay by mirrored transactions to get delay per transaction.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Redo blocked/sec

Number of times the REDO thread was blocked in this database since this database was brought ONLINE.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Transaction Delay

The total time for all transactions waited on the secondary acknowledgement.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Log Send Queue

The size of the log send queue on this replica.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: File Bytes Received / sec

The number of filestream bytes received by from this replica. This is valid only on the secondary

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Redo Bytes Remaining

The amount of log bytes remaining to be redone to finish the reverting phase.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Log Remaining for undo

The amount of log that need to be undone in KB.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Recovery Queue

Amount of log records in the log files of the secondary replica that has not yet been redone.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Log Apply Ready Queue

Number of log blocks pending and ready to be applied to the database replica.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Log Apply Pending Queue

Number of log blocks pending to be applied to the database replica.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Redone Bytes / sec

The rate at which log records are redone on the secondary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Total Log requiring undo

Total kilobytes of log that must be undone.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Database Replica - Console Tasks

SQL Server Management Studio

Open SQL Server Management Studio and connect to Availability Replica of target Database Replica.

Suspend Data Movement

Open SQLPS console and suspend data movement for target Database Replica

Resume Data Movement

Open SQLPS console and resume data movement for target Database Replica

SQL Server PowerShell

Open SQLPS console and connect to Availability Replica of target Database Replica.

MSSQL 2016: Database Replica Critical Policy

Custom User Policy which has Database Replica State as Facet and one of the error categories as Policy Category.

MSSQL 2016: Database Replica Critical Policy - Unit monitors

Database Replica Health Policy

Two state monitor with 'Error' critical state used particularly for reflecting state of Custom User Policies which have Database Replica State as Facet and one of the predefined error categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Database Replica Warning Policy

Custom User Policy which has Database Replica State as Facet and one of the warning categories as Policy Category.

MSSQL 2016: Database Replica Warning Policy - Unit monitors

Database Replica Health Policy

Two state monitor with 'Warning' critical state used particularly for reflecting state of Custom User Policies which have Database Replica State as Facet and one of the predefined warning categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Group of Availability Groups

A group containing all Availability Groups of Microsoft SQL Server 2016

MSSQL 2016: Group of Availability Groups - Discoveries

[MSSQL 2016: Populate SQL Availability Group](#)

This discovery rule populates the Availability Group.

MSSQL 2016: Group of Availability Groups - Dependency (rollup) monitors

[Availability Group Security Rollup](#)

Availability Group Security Rollup

[Availability Group Configuration Rollup](#)

Availability Group Configuration Rollup

[Availability Group Availability Rollup](#)

Availability Group Availability Rollup

[Availability Group Rollup](#)

Availability Group Performance Rollup

MSSQL 2016: Group of Availability Replicas

A group containing all Availability Replicas of Microsoft SQL Server 2016

MSSQL 2016: Group of Availability Replicas - Discoveries

MSSQL 2016: Populate SQL Availability Replica Group

This discovery rule populates the Availability Replica Group.

MSSQL 2016: Group of Availability Replicas - Dependency (rollup) monitors

Availability Replica Availability Rollup

Availability Replica Availability Rollup

Availability Replica Rollup

Availability Replica Performance Rollup

Availability Replica Configuration Rollup

Availability Replica Configuration Rollup

Availability Replica Security Rollup

Availability Replica Security Rollup

MSSQL 2016: Group of Database Replicas

A group containing all Database Replicas of Microsoft SQL Server 2016

MSSQL 2016: Group of Database Replicas - Discoveries

MSSQL 2016: Populate SQL Database Replica Group

This discovery rule populates the Database Replica Group.

MSSQL 2016: Group of Database Replicas - Dependency (rollup) monitors

Database Replica Availability Rollup

Database Replica Availability Rollup

Database Replica Rollup

Database Replica Performance Rollup

Database Replica Security Rollup

Database Replica Security Rollup

Database Replica Configuration Rollup

Database Replica Configuration Rollup

Server Roles Group

Server Roles Group contains all SQL Server root objects such as Database Engine, Analysis Services instance or Reporting Service instance.

Server Roles Group - Discoveries

[MSSQL 2016: Server Roles Group Discovery](#)

This object discovery populates the Server Roles group to contain all SQL Server Roles.

[MSSQL 2016: Server Roles Group Discovery](#)

This object discovery populates the Server Roles group to contain all SQL Server Roles.

SQL 2016 Mirrored DB

Microsoft SQL Server 2016 Mirrored Database

SQL 2016 Mirrored DB - Discoveries

[Discover Mirrored Databases for a Database Engine](#)

This object discovery discovers all mirrored databases running for a given instance of SQL Server 2016 DB Engine. By default all mirrored databases are discovered and monitored. You can override the discovery to exclude one or more databases from being discovered using the Exclude List. This list takes a comma-separated list of database names or the * character to exclude all databases.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Exclude List	A comma-separated list of database names that should be excluded from discovery. You can use the wildcard * to exclude all databases.	
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run	300

	before being closed and marked as failed.	
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SQL 2016 Mirrored DB - Unit monitors

Database Mirror Status

This monitor checks if database mirror is synchronized.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Database Mirror Witness Status

This monitor checks if database mirror witness is accessible.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	

Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
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SQL 2016 Mirrored DB Witness

Microsoft SQL Server 2016 Mirrored Database Witness

SQL 2016 Mirrored DB Witness - Discoveries

Discover Mirrored Databases Witnesses

This object discovery discovers all mirrored databases witnesses running for a given instance of SQL Server 2016 DB Engine. By default witnesses for all mirrored databases are discovered and monitored. You can override the discovery to exclude one or more databases from being discovered using the Exclude List. This list takes a comma-separated list of database names or the * character to exclude all databases.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Exclude List	A comma-separated list of database names that should be excluded from discovery. You can use the wildcard * to exclude all databases.	
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL 2016 Mirrored DB Witness - Unit monitors

Database Mirroring Partners Status

This monitor checks if database mirror is synchronized.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL 2016 Mirroring Group

Microsoft SQL Server 2016 Mirroring Group

SQL 2016 Mirroring Group - Discoveries

Discover Mirrored Databases Witnesses

This object discovery discovers all mirrored databases witnesses running for a given instance of SQL Server 2016 DB Engine. By default witnesses for all mirrored databases are discovered and monitored. You can override the discovery to exclude one or more databases from being discovered using the Exclude List. This list takes a comma-separated list of database names or the * character to exclude all databases.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Exclude List	A comma-separated list of database names that should be excluded from discovery. You can use the wildcard * to exclude all databases.	
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Discover Mirrored Databases for a Database Engine

This object discovery discovers all mirrored databases running for a given instance of SQL Server 2016 DB Engine. By default all mirrored databases are discovered and monitored. You can override the discovery to exclude one or more databases from being discovered using the Exclude List. This list takes a comma-separated list of database names or the * character to exclude all databases.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Exclude List	A comma-separated list of database names that should be excluded from discovery. You can use the wildcard * to exclude all databases.	
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL 2016 Mirroring Group - Dependency (rollup) monitors

Mirroring Witness Availability Rollup

This monitor rolls up the Mirroring Witness availability health to the Mirroring Group.

Mirrored Database Configuration Rollup

This monitor rolls up the Mirrored Database configuration health to the Mirroring Group.

[Mirrored Database Performance Rollup](#)

This monitor rolls up the Mirrored Database performance health to the Mirroring Group.

[Mirrored Database Availability Rollup](#)

This monitor rolls up the Mirrored Database availability health to the Mirroring Group.

SQL 2016 Mirroring Witness Role

Microsoft SQL Server 2016 Database Mirroring Witness Role.

SQL 2016 Mirroring Witness Role - Dependency (rollup) monitors

[Mirroring Witness Availability Rollup](#)

This monitor rolls up the Mirroring Witness availability health to the Mirroring Witness Role.

SQL Server 2016 Agent

The SQL Server 2016 Agent component that runs as part of a Microsoft SQL Server 2016 Database Engine

SQL Server 2016 Agent - Discoveries

[MSSQL 2016: Discover SQL Server Agent for a DB Engine](#)

This discovery rule discovers the SQL Server Agent for an instance of SQL Server 2016 DB Engine. There could be only one SQL Server Agent instance for each DB Engine instance.

SQL Server 2016 Agent - Unit monitors

[SQL Server Agent Windows Service](#)

This monitor checks the status of the SQL Agent service for this instance of SQL Server. Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Alert only if service startup type is automatic	This may only be set to 'true' or 'false'. If set to 'false', then alerts will be triggered no matter what the startup type is set to. Default is 'true'.	true

Long Running Jobs

This monitor checks for long running SQL Agent jobs.

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express; there is no appropriate discovered object. This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Critical Threshold (minutes)	The monitor will change its state to Critical if the value exceeds this threshold. Being between this threshold and the warning threshold (inclusive) will result in the monitor being in a warning state.	120
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	600
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
Warning Threshold (minutes)	Warning threshold. Exceeding this threshold will result in the monitor changing to at least a warning state.	60

SQL Server 2016 Agent - Dependency (rollup) monitors

Agent job performance (rollup)

This monitor rolls up the performance state from SQL Agent Jobs to SQL Agent.

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express; there is no appropriate discovered object.

Agent job availability (rollup)

This monitor rolls up the availability state from SQL Agent Jobs to SQL Agent.

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express; there is no appropriate discovered object.

SQL Server 2016 Agent - Rules (alerting)

MSSQL 2016: : SQL Server Agent is unable to connect to SQL Server

The SQL Server Agent Service could not connect to the instance of SQL Server. This error may occur when the SQL Server Agent service account does not have a valid login on SQL Server

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Alert engine stopped due to unrecoverable local eventlog errors

SQL Server Agent was unable to open the local event log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Job step cannot be run because the subsystem failed to load

A SQL Server job failed to run because the SQL Server Agent subsystem failed to load.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Unable to re-open the local eventlog

SQL Server Agent was unable to open the local event log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server Agent initiating self-termination

SQL Server Agent has shut down the SQL Server Agent service.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server Agent could not be started

A process or a person attempted to start the SQL Server Agent service, but the service did not start.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: A SQL job failed to complete successfully

A SQL Server Agent Job Failed. The SQL Server Agent is responsible for running SQL Server tasks scheduled to occur at specific times or intervals as well as detecting specific conditions for which administrators have defined an action, such as alerting someone through pages or e-mail, or a task that will address the conditions. The SQL Server Agent is also used for running replication tasks defined by administrators. Note: this rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Step of a job caused an exception in the subsystem

A specific job step caused SQL Server Agent to write an error to the Windows Application log. The log will show the specific job and job step.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

SQL Server 2016 Agent - Tasks

Start SQL Agent Service

Start SQL Agent Service

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Stop SQL Agent Service

Stop SQL Agent Service

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

SQL Server 2016 Agent Group

A group containing all agents of Microsoft SQL Server 2016 database engines

SQL Server 2016 Agent Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Agent Group](#)

This discovery rule populates the Agent group with all SQL Server 2016 Agents.

SQL Server 2016 Agent Job

All Microsoft SQL Server 2016 agent jobs.

SQL Server 2016 Agent Job - Discoveries

[MSSQL 2016: Discover SQL Server 2016 Agent Jobs](#)

This discovery rule discovers all SQL Server 2016 Agent jobs.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Agent Job - Unit monitors

Job Duration

Monitors Agent Job Duration.

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express; there is no appropriate discovered object.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Critical Threshold (minutes)	The monitor will change its state to Critical if the value exceeds this threshold. Being between this threshold and the warning threshold (inclusive) will result in the monitor being in a warning state.	120
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	600
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
Warning Threshold (minutes)	Warning threshold. Exceeding this threshold will result in the	60

	monitor changing to at least a warning state.	
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Last Run Status

SQL 2016 Agent Job Last Run State Monitor. Monitors the last run state of an SQL Agent Job. Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express; there is no appropriate discovered object.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	600
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Agent Job - Tasks

Start SQL Agent Service

Start SQL Agent Service

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Stop SQL Agent Service

Stop SQL Agent Service

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

SQL Server 2016 Agents Group

A group containing all SQL Server 2016 agents

SQL Server 2016 Agents Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Agents Group](#)

This discovery rule populates the SQL Server 2016 Agents group with all SQL Server 2016 agents.

SQL Server 2016 Components

A group containing all components related to Microsoft SQL Server

SQL Server 2016 Components - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Components Group](#)

This discovery rule populates the Components group with all SQL Server 2016 related components

SQL Server 2016 Computers

A group containing all Windows computers that are running a component of Microsoft SQL Server 2016.

SQL Server 2016 Computers - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Computer Group](#)

This discovery rule populates the SQL Server 2016 Computer Group with all computers running SQL Server 2016.

[MSSQL 2016: Populate Microsoft SQL Server 2016 Computer Group](#)

This discovery rule populates the SQL Server 2016 Computer Group with all computers that are running one or more components of SQL Server 2016.

SQL Server 2016 Custom User Policy

Custom User Policy object

SQL Server 2016 Custom User Policy - Discoveries

MSSQL 2016: Database Custom User Policy Discovery

This discovery rule discovers Custom User Policies for SQL Server 2016 Database. Note: this discovery is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Database Critical Policy

Custom User Policy, which has a Database as the Facet and one of the error categories as Policy Category.

SQL Server 2016 Database Critical Policy - Unit monitors

Database Health Policy

Two state monitor with 'Error' critical state used particularly for reflecting state of Custom User Policies which have Database as Facet and one of the predefined error categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Database Group

A group containing all databases of Microsoft SQL Server 2016 database engines

SQL Server 2016 Database Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Database Group](#)

This discovery rule populates the Database group with all SQL Server 2016 Databases.

SQL Server 2016 Database Warning Policy

Custom User Policy, which has a Database as the Facet and one of the warning categories as Policy Category.

SQL Server 2016 Database Warning Policy - Unit monitors

[Database Health Policy](#)

Two state monitor with 'Warning' critical state used particularly for reflecting state of Custom User Policies which have Database as Facet and one of the predefined warning categories as Policy Category.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Databases Group

A group containing all SQL Server 2016 databases

SQL Server 2016 Databases Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Databases Group](#)

This discovery rule populates the SQL Server 2016 Databases group with all SQL Server 2016 databases.

SQL Server 2016 DB

Microsoft SQL Server 2016 Database

SQL Server 2016 DB - Discoveries

MSSQL 2016: Discover Databases for a Database Engine

This discovery rule discovers all databases running for a given instance of SQL Server 2016 DB Engine. By default all databases are discovered and monitored. You can override the discovery to exclude one or more databases from being discovered using the Exclude List. This list takes a comma-separated list of database names or the * character to exclude all databases.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Exclude List	A comma-separated list of database names that should be excluded from discovery. You can use the wildcard * to exclude all databases.	
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB - Unit monitors

Page Verify Configuration

Monitors the Page Verify setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	false

Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	CHECKSUM
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Destination Log Shipping

This monitor detects when a log shipping destination has not had a log restored to it within the threshold defined as a part of the log shipping configuration.

Note that all Log Shipping is not supported by any edition of SQL Server Express.

Source Log Shipping

This monitor detects when a log shipping source has not had its logs backed up within the threshold defined as a part of the log shipping configuration.

Note that all Log Shipping is not supported by any edition of SQL Server Express.

Database Backup Status

This monitor checks the status of the database backup as reported by Microsoft SQL Server. Note that the monitor ignores Always On databases. Therefore, it is always "green" for those databases. For backups of Always On databases, use the dedicated monitors at the Availability Group. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Backup Period (days)	The target backup frequency in days. Should be set according to your Recovery Point Objective (RPO).	7

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	86400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Database Status

This monitor checks the status of the database as reported by Microsoft SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	3600
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server Windows Service

This monitor checks the status of the SQL Database Engine service.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	False

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	60
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DB Chaining Configuration

Monitors the Cross-database Ownership Chaining Enabled setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	false
Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	OFF
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Disk Write Latency

Disk Write Latency monitor for 2016 databases. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No

Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:19
Threshold	The collected value will be compared against this parameter.	25
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	200

Auto Close Configuration

Monitors the Auto Close setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	true
Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	OFF

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Transaction Log Free Space (%)

Transaction Log Free Space (%) monitor for 2016 databases. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Threshold	The collected value will be compared against this parameter.	10
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	180

Auto Update Statistics Async Configuration

Monitors the Auto Update Atatistics Asynchronously setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	false
Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	OFF
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Auto Update Statistics Configuration

Monitors the Auto Update Statistics setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	false

Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	ON
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

DB Free Space Left

Monitors the space available in the database and on the media hosting the database in percentage terms. Note: This monitor is disabled by default. Please use overrides to enable it when necessary. This monitor does not count free space for FILESTREAM and Memory-Optimized Data file groups.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Critical Threshold	The monitor will change its state to Critical if the value drops below this threshold. Being between this threshold and the warning threshold (inclusive) will result in the monitor being in a warning state.	10
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
Warning Threshold	The monitor will change its state to Warning if the value drops below this threshold.	20

Auto Create Statistics Configuration

Monitors the Auto Create Statistic setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	false
Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	ON
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

DB Space Percentage Change

Monitors for a significant decrease of database free space over a number of sample periods.
 Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Critical Threshold	The monitor will change its state to Critical if the value exceeds this threshold. Being between this threshold and the warning threshold (inclusive) will result in the monitor being in a warning state.	45
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	5
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
Warning Threshold	Warning threshold. Exceeding this threshold will result in the monitor changing to at least a warning state.	25

Disk Read Latency

Disk Read Latency monitor for 2016 databases. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:19
Threshold	The collected value will be compared against this parameter.	40
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	200

Recovery Model Configuration

Monitors the Recovery model setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not	false

	consider SQL Server Express edition if set to 'true'.	
Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	FULL
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Auto Shrink Configuration

Monitors the Auto Shrink setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	false
Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	OFF
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200

Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
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Trustworthy Configuration

Monitors the Trustworthy setting for the database. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Disable Check for SQL Express	This may only be set to 'true' or 'false'. The workflow will not consider SQL Server Express edition if set to 'true'.	false
Expected Value	Expected value of database configuration setting. To view the set of applicable values please refer to "Configuration" section of the knowledge base article of this monitor.	OFF
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB - Aggregate monitors

Recovery Configuration

Monitors the aggregate recovery configuration health for the database.

DB Log File Space

Monitors the aggregate space health for the log file.

Database Extended Health State

Database Extended Health Aggregate State monitor

Automatic Configuration

This monitor aggregates the health of automatic configuration monitors.

DB Space

Monitors the aggregate space health for the database.

External Access Configuration

Monitors the aggregate external access configuration health for the database.

SQL Server 2016 DB - Dependency (rollup) monitors

DB Memory-Optimized Data Filegroup Space (rollup)

This dependency monitor rolls up the overall health from Memory-Optimized Data Filegroup to Database.

DB Filegroup Space (rollup)

This dependency monitor rolls up the overall space health from Database Filegroups to the Database.

Memory-Optimized Data Stale Checkpoint File Pairs Ratio (rollup)

The monitor reports a warning state and raises an alert when the ratio of stale checkpoint file pairs in Memory-Optimized Data Filegroup is higher than the specified thresholds. This monitor is a dependency (rollup) monitor.

Please note that the alerts are raised only if the corresponding database is reasonably big (300 or more checkpoint files total).

Average length of the row chains in the hash buckets (rollup)

This monitor checks Hash Index Empty Buckets Count and Average Length of the Row Chains in the SQL Database. This monitor is a dependency (rollup) monitor.

DB Log File Space (rollup)

The monitor oversees the space available in all transaction log files in the database and on related media. The space available on the media hosting transaction log files is only included as part of the free space if autogrowth is enabled for at least one transaction log file. This monitor is a dependency (rollup) monitor.

XTP Configuration (rollup)

This monitor checks the status of the SQL Database XTP Configuration. This monitor is a dependency (rollup) monitor.

Note that this monitor works only with Enterprise, Developer, and Evaluation editions of Microsoft SQL Server. With other editions, the monitor will always be in healthy state.

Database Warning Policies (rollup)

This is the rollup monitor for all extended health monitors. Extended health monitors are automatically generated by discovering existing health policies in SQL server instances. This monitor is for warning custom user policies.

Database Critical Policies (rollup)

This is the rollup monitor for all extended health monitors. Extended health monitors are automatically generated by discovering existing health policies in SQL server instances. This monitor is for critical custom user policies.

[Deprecated] Garbage Collection State (rollup)

The monitor reports a Critical State and raises an alert if the amount of space used by active rows in all Memory-Optimized Data files drops below the Threshold setting, expressed as a percentage of the size of data files. This monitor is a dependency (rollup) monitor. This monitor is considered to be obsolete in this Management Pack.

Empty Bucket percent in the hash index (rollup)

This monitor checks Hash Index Empty Buckets Count in the SQL Database. This monitor is a dependency (rollup) monitor.

DB FILESTREAM Filegroup Space (rollup)

This dependency monitor rolls up the overall space health from Database FILESTREAM Filegroups to the Database.

Resources Pool Memory Consumption (rollup)

The monitor reports a critical state and raises an alert when the amount of memory used by the resource pool is greater than the Threshold setting, expressed as a percentage of memory available for Memory-Optimized Data tables for the given resource pool. This monitor is a dependency (rollup) monitor.

SQL Server 2016 DB - Rules (non-alerting)

MSSQL 2016: DB Transactions Per Second Count

SQL 2016 Databases Transactions per second performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: DB Allocated Space (MB)

Collect database allocated size

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Active Sessions Count

SQL 2016 Databases Active Sessions performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:15
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Disk Write Latency (ms)

SQL 2016 DB Disk Write Latency (ms) performance collection rule. Gets maximum Write disk latency from all logical disk, which host database files.

Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:19
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Allocated Free Space (MB)

SQL 2016 DB Allocated Free Space (MB) performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Allocated Space Used (MB)

SQL 2016 Databases Allocated Space Used (MB) performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Free Space Total (%)

The amount of space left in the database for all files in all Filegroups for this database in percentage terms. Also includes space left on media hosting a file with autogrowth enabled. Please note that this rule collects metrics for ROWS data only. Metrics for FILESTREAM and for Memory-Optimized Data are ignored.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Active Transactions Count

SQL 2016 Databases Active Transactions performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: DB Disk Read Latency (ms)

SQL 2016 DB Disk Read Latency (ms) performance collection rule. Gets maximum read disk latency from all logical disk, which host database files.

Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:19
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Active Requests Count

SQL 2016 Databases Active Requests performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:13
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Free Space Total (MB)

The amount of space left in the database for all files in all Filegroups for this database in megabytes. Also includes space left on media hosting a file with autogrowth enabled. Please note that this rule collects metrics for ROWS data only. Metrics for FILESTREAM and Memory-Optimized Data are ignored.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Active Connections Count

SQL 2016 Databases Active Connections performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:11
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Transaction Log Free Space Total (%)

Collect unused transaction log space reported by SQL Server as a percentage of total transaction log space

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Free Outer Space (MB)

SQL 2016 Databases Free Outer Space (MB) performance collection rule

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB - Tasks

[Set Database Online](#)

Set Database Online

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

[Set Database Offline](#)

Set Database Offline

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run	300

	before being closed and marked as failed.	
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Check Disk (DBCC)

Checks the consistency of disk space allocation structures for a specified database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Check Database (DBCC)

Checks the allocation, structural, and logical integrity of all the objects in the specified database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Set Database to Emergency State

Set Database to Emergency State

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Check Catalog (DBCC)

Checks for catalog consistency within the specified database. The database must be online.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

SQL Server 2016 DB - Console Tasks

[SQL Profiler](#)

[SQL Management Studio](#)

SQL Server 2016 DB Engine

An installation of a Microsoft SQL Server 2016 Database Engine. The database engine hosts databases and other SQL Server components.

SQL Server 2016 DB Engine - Discoveries

[MSSQL 2016: Discover SQL Server 2016 Database Engines](#)

This discovery rule discovers all instances of SQL Server 2016 DB Engine running on Windows Servers. By default all instances are discovered and monitored. You can override the discovery to exclude one or more instances from being discovered using the Exclude List. This list takes a comma-separated list of instances or the * character to exclude all instances.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Exclude List	A comma-separated list of instances that should be excluded from discovery. You can use the wildcard * to exclude all instances.	
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Engine - Unit monitors

[CPU Utilization \(%\)](#)

CPU Utilization (%) for 2016 DB Engine

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Cache Expiration Time	Specifies the maximum age of information from cache the workflow can use. May be omitted.	43200
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:18
Threshold	The collected value will be compared against this parameter.	95
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	200

Average Wait Time

Average Wait Time monitor for 2016 databases.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Threshold	The collected value will be compared against this parameter.	250
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Re-Compilation

SQL Re-Compilation for 2016 DB Engine. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:21
Threshold	If the ratio between SQL Re-Compilation and SQL Compilation is greater than this threshold alert will be generated	25

Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	200
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Page Life Expectancy

Page Life Expectancy (s) for 2016 DB Engine

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Threshold	The collected value will be compared against this parameter.	300

Service Pack Compliance

Monitors the service pack level of the database engine against the compliant setting

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Minimal Service Pack level for SQL Server 2016	The minimal Service Pack level as per company policy.	1

Stolen Server Memory

Stolen Server Memory for 2016 DB Engine

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:24
Threshold	Alert will be generated if the Stolen Server Memory/SQL Server max memory ratio is greater than this threshold.	70
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	200

Blocking Sessions

Monitors blocked sessions for a SQL instance. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of blocked sessions	The maximum allowed number of blocked sessions.	1
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
Wait Time (minutes)	The minimum process execution duration before considering it for Blocked SPIDs analysis.	1

Managed Backup User Action Health Policy

The Managed Backup User Action Health Policy evaluates warnings such as corrupted backups, etc.

These warnings may not require any action but just a warning of an event.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Buffer Cache Hit Ratio

Buffer Cache Hit Ratio for 2016 DB Engine

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Threshold	The collected value will be compared against this parameter.	0

SQL Server Windows Service

This monitor checks the status of the SQL Server Database Engine service.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Alert only if service startup type is automatic	This may only be set to 'true' or 'false'. The workflow will not consider the current startup type setting of the service if this parameter is set to 'false'. Default is 'true'.	true
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	60
Unavailable Time (seconds)	The minimum duration of service unavailability before considering it unhealthy.	900

Thread Count

Thread Count for 2016 DB Engine

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Cache Expiration Time	Specifies the maximum age of information from cache the workflow can use. May be omitted.	43200
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Minimum Free Threads Threshold	The workflow determines the maximum number of threads and the number of active threads for each DB Engine process. An alert will be generated if the number of free threads is less or equal than this parameter.	10
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:18
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	200

Service Principal Name Configuration Status

This monitor checks the status of the Microsoft SQL Server instance Service Principal Name configuration.

Note that the monitor is always in "Healthy" state for non-domain joined machines.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Scope of search	Use LDAP search when the scope of a search is the domain or an organizational unit. When the scope of a search is the forest, the query can be resolved within any partition by using a Global Catalog (GC) search. List of values: LDAP GC	LDAP
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Full-text Filter Daemon Launcher Service

This monitor checks the status of the SQL Full-text Filter Daemon Launcher service. Note that SQL Full-text Search feature is not available in any edition of SQL Server Express, except SQL Server Express with Advanced Services. This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True

Alert only if service startup type is automatic	This may only be set to 'true' or 'false'. If set to 'false', then alerts will be triggered no matter what the startup type is set to. Default is 'true'.	true
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Managed Backup System Health Policy

The Managed Backup System Health Policy evaluates critical errors like lack of or invalid SQL Credentials, connectivity errors and reports the health of the system.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Engine - Dependency (rollup) monitors

Database Performance (rollup)

This monitor rolls up the performance state from Database to DB Engine.

SQL Server 2016 DB Engine - Rules (alerting)

MSSQL 2016: Full Text Search: Full-text catalog is in an unusable state. Drop and re-create this full-text catalog

The full-text catalog is offline. The full-text directory has been deleted, is corrupt, or the path points to a location that is not valid.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Cannot open backup device.

One or more of the files specified in a BACKUP or RESTORE command could not be opened. The potential reasons for this include:

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: The MSSQLServer service terminated unexpectedly

The error is reported by the SQL Server Agent service when it auto restarts SQL Server. SQL Server Agent will only auto restart SQL Server if SQL Server stopped for some reason other than an explicit stop command from a user or application, and if the Auto restart SQL Server if it stops unexpectedly option is selected in SQL Server Agent Advanced properties. During the restart of SQL Server, SQL Server Agent will write this message to the application event log on the computer hosting SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Test failed. Slot overlaps with the prior row

Slot S_ID's offset in the slot offset array is not greater than or equal to the end of the previous slot, so they overlap. TEST is 'sorted [i].offset >= max', where the lhs of the expression is the ADDRESS, and 'max' is the end of the previous slot.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: A SQL Server Service Broker procedure output results

A stored procedure, which was internally activated by SQL Server Service Broker, output results. Internal procedures should not output results. The event in the Windows application log contains the procedure name, the queue name, and the output results. The event is logged as MSSQLSERVER event ID 9724. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	0
Severity	Defines Alert Severity.	0

MSSQL 2016: .NET Framework runtime was shut down by user code

The rule triggers an alert when a user defined type, user defined-function, or user-defined property in an assembly contains faulty code.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Failure occurred during database recovery

This error occurs when SQL Server fails to recover a database successfully when it is brought online.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not open tempdb. Cannot continue

The tempdb database could not be opened. The possible reasons for this could include:

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not connect to server because it is not defined as a remote login at the server

Setting up security for executing remote procedure calls (RPC) against a remote server involves setting up login mappings in the remote server and possibly in the local server running an instance of Microsoft SQL Server. The mapping is specific to a given server\instance name, usually the NetBIOS name for a default instance and the NetBIOS name plus the instance name for a named instance. If the login mapping does not exist or if the name of the server specified in the connection string does not match the exact name in the sysremotelogins table, and the guest account does not have a mapping in sysremotelogins , you will receive this error. You will also see this error if the remote user is found to have a null or empty login name.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server Service Broker Manager has shutdown

The rule triggers an alert when the SQL Server Service Broker Manager has shutdown. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	0

MSSQL 2016: A SNI call failed during a Service Broker/Database Mirroring transport operation

The rule triggers an alert when a SNI call fails during a Service Broker/Database Mirroring transport operation. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Login failed: Password fails password filter DLL requirements

A user tried to access SQL Server with a password that did not meet the requirements of the password filter DLL. Windows security log will identify the user name under MSSQLSERVER event ID 18467.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not do cleanup for the killed process

This error message occurs when another error caused a user connection to terminate abnormally.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: The SQL Server Service Broker or Database Mirroring transport is disabled or not configured

The rule triggers an alert when the SQL Server Service Broker or Database Mirroring transport is disabled or not configured. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Failed to initialize the Common Language Runtime (CLR) with HRESULT

The rule triggers an alert when an assembly or application fails to start and logs an HRESULT error.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: The server is too busy to perform the backup or restore operation

Failed to start a sub-process (a parallel query or parallel I/O) because no threads are available or too many sub-processes executing.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Cross object linkage

The page P_ID1 points, in a parent-child manner, to a page (P_ID2) in a different object.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Distributed transaction was aborted by MSDTC

The rule triggers an alert when Distributed transaction was aborted by MSDTC.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Login failed: Password cannot be used at this time

A user attempted to change the password, but the proposed password could not be used at this time. The Windows security log will identify the user name under MSSQLSERVER event ID 18463.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Login failed

When a connection attempt is rejected because of an authentication failure that involves a bad password or user name, a message similar to the following is returned to the client: "Login failed for user 'user_name'". (Microsoft SQL Server, Error: 18456)".

Note: this rule might be noisy in some environments. Therefore, it is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Login failed: Password too long

A user attempted to create a password, but the proposed password was too long. The Windows security log will identify the user name under MSSQLSERVER event ID 18465.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: Allocation page has invalid page header values.

The page specified has an invalid page header.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server Assertion

SQL Server has raised an error. Under normal circumstances, SQL Server has posted a dump file in the log directory to help identify the actions that preceded the error. The error may have been caused by data corruption, an error in the client application, an error in SQL Server, network instability, or hardware failure.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: The I/O operation was successful after retry

A read operation on a database page or transaction log block was successful but only after retrying the operation. While you may not need to take immediate action, you should research the cause of the error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: CREATE DATABASE failed. Could not allocate enough disk space for a new database on the named disks

This error occurs when there is not enough space on the device to create the model database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Extent object is beyond the range of this database

P_ID is a PageID of the form (filenum:pageinfile). The pageinfile of this extent is greater than the physical size of the file filenum of the database. The extent is marked allocated in an IAM page for the object/index ID indicated.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Full Text Search: Full-text catalog lacks sufficient disk space to complete this operation

There is not enough disk space to hold the full-text catalog.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Page was not seen in the scan although its parent and previous refer to it. Check any previous errors

A page (P_ID1) in a B-tree was not seen, even though an index page (P_ID2) points to it as a child page and its previous page (P_ID3) in the page chain points to it as the next page in the chain. This can happen at any level of the B-tree. Both error states mean the same thing; they differ only in where the error was discovered.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not use Address Windowing Extensions because 'lock pages in memory' privilege was not granted

The rule triggers an alert when SQL Server cannot use Address Windowing Extensions because 'lock pages in memory' because privilege was not granted.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: An error occurred in a SQL Server Service Broker/Database Mirroring transport connection endpoint

SQL Server uses Service Broker and Database Mirroring endpoints for communication outside of the SQL Server instance.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: An error occurred in the Service Broker manager

The rule triggers an alert when an error occurred in the SQL Server Service Broker manager.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not allocate new page for database. There are no more pages available in Filegroup.

Space can be created by dropping objects, adding additional files, or allowing file growth.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Page in its header is allocated by another object

A page has the object/index ID specified but is not allocated by any of that index's IAM pages. The page has an incorrect object/index ID in its header, so there will be a matching 2533 (page not seen although allocated) error for the page. The 2533 error corresponds to the index the page is really allocated to.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not mark database as suspect. Getnext NC scan on sysdatabases.dbid failed

The SQL Server recovery process tried to turn on the suspect flag for the specified database, but it could not find the appropriate row in sysdatabases or could not update the database information in memory. The reason the database needs to be marked suspect should be indicated by other messages in the SQL Server error log or the Event Viewer.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Database consistency errors found

This message indicates a database consistency check has encountered errors and none or not all of the errors were repaired.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: The query has been canceled because the estimated cost of this query exceeds the configured threshold. Contact the system administrator

The configuration setting for the query governor cost limit option is lower than the cost the SQL Server optimizer estimated for the specified query. By default, the query governor cost limit option is set to 0, which allows all queries to run. However, on this instance of SQL Server an upper limit was specified by setting the option to a number greater than 0. Query plans with an anticipated cost larger than this value are not started.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Cannot start service broker manager

The rule triggers an alert when SQL Server cannot start service broker manager.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Transaction was deadlocked on resources with another process and has been chosen as the deadlock victim. Rerun the transaction

This error occurs when Microsoft SQL Server encounters a deadlock. A deadlock occurs when two (or more) processes attempt to access a resource that the other process holds a lock on. Because each process has a request for another resource, neither process can be completed. When a deadlock is detected, SQL Server rolls back the command that has the least processing time and returns error message 1205 to the client application. This error is not fatal and may not cause the batch to be terminated.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Conflict table does not exist

This error occurs when you try to add or drop a column to a merge article, but the conflict table specified in sysmergearticles for the modified article does not actually exist in the database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: The Service Broker/Database Mirroring transport cannot listen on port because it is in use

When you create a Service Broker or Database Mirroring endpoint, SQL Server should be able to accept TCP/IP connections on the port that is specified in the endpoint configuration. The transport security requires authorization for connections to the port. If the server has a firewall enabled, the firewall configuration must allow both incoming and outgoing connections for the port that is used by the endpoint.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: The text, ntext, or image node at page is not referenced

The text node was not referenced in any complex column in any heap or clustered index. It is effectively orphaned.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server Service Broker cryptographic operation failed

The rule triggers an alert when SQL Server Service Broker cryptographic operation fails.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Enlist of MSDTC transaction failed

The rule triggers an alert when SQL Server fails to enlist a new or existing distributed transaction.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Commit of internal MSDTC transaction failed

The rule triggers an error when COMMIT of internal MSDTC transaction failed

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: cross-object chain linkage

The first phase of a DBCC CHECKDB is to do primitive checks on the data pages of critical system tables. If any errors are found, they cannot be repaired and so the DBCC CHECKDB terminates immediately.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Cannot open user default database. Login failed

When a client connects to a SQL Server instance without specifying a database context, the default database defined for its login is used. If that database is unavailable for any reason, the above message appears.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Login failed: Error during validation

A user attempted to log in to SQL Server. An unexpected error occurred during validation. The Windows security log will identify the user name and error ID under MSSQLSERVER event ID 18468.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server shutdown due to Ctrl-C or Ctrl-Break signal

The SQL Server instance was started from a command prompt using sqlservr.exe, and now a Ctrl-C or Ctrl-Break command was issued from that prompt to stop the sqlservr.exe application. No checkpoints were performed during the shutdown. This message is written to the SQL Server error log and the application event log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Optimized concurrent query limit has been exceeded

You are using an edition of SQL Server that is licensed for a limited number of concurrent queries. This includes the Personal and Desktop editions. Those editions have a concurrent workload governor that limits them to a specific number of concurrent user queries plus a smaller number of concurrent system tasks.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: Unexpected page type

Page P_ID had a page type that was unexpected by the code trying to interpret it. The page is marked allocated, however, which is why the DBCC code is trying to interpret it.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: A security (SSPI) error occurred when connecting to another Service Broker or Database Mirroring host

When Service Broker transport security uses SSPI, the service account for the remote database must have CONNECT permission in master database. Remote SQL Server instance should allow Windows Authentication for the account being used by remote host. There are no requirements for the login to have other permissions or to own objects in any database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: CHECKTABLE terminated. A failure was detected while collecting facts.

Possibly tempdb out of space or a system table is inconsistent. Check previous errors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Cannot start service broker activation manager

The rule triggers an alert when service broker fails to start activation manager.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: An error occurred in the timer event cache

An error occurred in the SQL Server Service Broker transport layer timer event cache. The Windows application log or SQL Server error log may identify the specific error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1

Severity	Defines Alert Severity.	2
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MSSQL 2016: Database consistency check performed with no errors

This message indicates a database consistency check has been run but no errors were encountered.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	0
Severity	Defines Alert Severity.	0

MSSQL 2016: SQL Server Service Broker could not query the FIPS compliance mode flag from the registry

The rule triggers an alert when SQL Server Service Broker could not query the FIPS compliance mode flag from the registry.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not open error log file

When installing Microsoft SQL Server on an NTFS partition, make sure that the NTFS file permissions allow read/write access. Otherwise, this error message may appear in the Microsoft Windows NT application log (for each installation attempt).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XTP Background Thread Error Log

The rule listens to event 41355 and raises a warning alert if the event is added to the log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not read and latch page

The page read failed for some reason (see any accompanying errors), or a latch could not be taken (there may be latch timeout messages on the error log).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XTP Insufficient Disk Space

The rule listens to event 41822 and raises a critical alert if the event is added to the log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1

Severity	Defines Alert Severity.	2
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MSSQL 2016: Table error: Table missing or invalid key in index for the row:

Every data row in a table (heap or clustered index) must have exactly one matching index row in every non-clustered index over that table. This error means that a non-clustered index is missing an index row.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: Cross object linkage. Page PGID->next is not in the same index

Page P_ID is linked to page P_ID2 but the two pages are allocated to different indexes and/or objects.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server Service Broker or Database Mirroring Transport stopped

The rule triggers an alert when at least one of the endpoints in a SQL Server Service Broker conversation has stopped listening for connections. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	0
Severity	Defines Alert Severity.	2

MSSQL 2016: An error occurred in the SQL Server Service Broker message transmitter

SQL Server Service Broker message transmitter detected an error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Database consistency errors found and repaired

This message indicates a database consistency check has encountered errors and all of the errors were repaired.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: The LSN passed to log scan in database is invalid

If you see this message during startup when the SQL Server process tries to recover the database or as a result of an ATTACH statement, the log file for the database is corrupted. If you see the message during a restore process, the backup file is corrupted. If you see this message during a replication process, the replication metadata may be incorrect.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Failed to initialize the Common Language Runtime (CLR) with HRESULT

The rule triggers an alert when an assembly or an application fails to start and logs an HRESULT error. The Windows application log may contain an information about specific HRESULT.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Failed to add column to table

sp_repladdcolumn failed to add the specified column to the table in the publication database. If another error is reported along with this one, the other error should indicate the reason the column could not be added. If no other error is reported, the problem could be that the owner-qualified table does not exist, or the data type is not one that can be added to a replicated table. The data type of the new column must either be an identity, computed, or timestamp column; allow nulls; or have a default. For more information about sp_repladdcolumn, see "Schema Changes on Publication Databases" in Books Online.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Failed to restore master database. Shutting down SQL Server

The backup of the master database that you are restoring is not usable. The file itself may have been corrupted, or the original master database from which the backup was taken may have data integrity problems.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Page is missing a reference from previous page. Possible chain linkage problem

A page (P_ID2) in a B-tree was not seen, even though its neighbor (P_ID1) in the page chain points to it in its previous page link. This can happen in any level of the B-tree. Both error states mean the same thing; they differ only in where the error is discovered.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not resolve the referenced column name in table

This error occurs when you try to modify data in a table with a foreign key that references a column that no longer exists in the referenced table. Merely renaming a column will not cause this error. Under normal circumstances, a column referenced by a foreign key cannot be dropped, so this error may indicate that unsupported direct system table updates have occurred.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Internal Query Processor Error: The query processor ran out of stack space during query optimization

The Query Processor is using a large but limited memory stack when optimizing queries. In some extreme situations the stack size may become a limit for a given very large query--for example, a query containing an inlist with 100,000 constants.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server Service Broker or Database Mirror cryptographic call failed

SQL Server Service Broker or Database Mirror attempted to call an operating system cryptographic function. The cryptographic function returned an error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Internal Query Processor Error: The query processor encountered an unexpected error during execution

This is an internal query processor error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Database cannot be opened due to inaccessible files or insufficient memory or disk space

Error 945 is returned when the database is marked IsShutdown . This occurs when a database cannot be recovered due to missing files, or some other resource error that usually can be corrected easily.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Starting without recovery

SQL Server is starting without recovery.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server Service Broker cannot use RC4 encryption algorithm when running in FIPS compliance mode

SQL Server Service Broker has a conversation where at least one endpoint has been configured to use RC4 encryption and the server is set for Federal Information Processing Standard (FIPS) compliance mode. RC4 encryption is not supported when running in FIPS compliance mode.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: The provider reported an unexpected catastrophic failure

The provider reported an unexpected catastrophic failure.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Slot, row extends into free space

The end of the slot S_ID is past the persisted free space offset, ADDRESS. TEST is 'max <= m_freeData', where the persisted free space offset is 'm_freeData' and the end of slot S_ID is 'max'.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Failed to allocate memory for Common Language Runtime (CLR)

The rule triggers an alert when SQL Server is unable to allocate memory for CLR.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Logical page in database is already hashed

This error occurs when SQL Server attempts to hash the logical page %S_PGID of database ID%d and the page is already in the SQL Server hash table.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: OS Error occurred while performing I/O on page

An operating system error occurred when reading or writing a database page. The error message contains the specific operating system error encountered.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: B-tree page has two parent nodes

The B-tree structure is corrupt because page P_ID1 is referenced as a child page by slots in two pages higher in the B-tree, P_ID2 and P_ID3. A page can only be referenced by a single parent.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XTP Compiler Failure

The rule listens to event 41313 and raises a warning alert if the event is added to the log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not obtain exclusive lock on database

You may receive this error stating a lock could not be obtained for the model database if the model database is in use when you issue any CREATE DATABASE statement. Since a new database is copied from the model database, the model database has to be in a state with no activity.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server Assertion

SQL Server has raised an error. Under normal circumstances, SQL Server has posted a dump file in the log directory to help identify the actions that preceded the error. The error may have

been caused by data corruption, an error in the client application, an error in SQL Server, network instability, or hardware failure.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: Column is not a valid complex column

A column is marked as being a complex column in the record's variable length column section, but it is not a valid text pointer or in-row text root.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: IAM chain linkage error

There is a break in the IAM chain for the index specified. A page P_ID2 is pointed to by the next page pointer of page P_ID1, but page P_ID2's previous page pointer points to a different page, P_ID3. Both error states mean the same, and only differ in where the corruption was discovered.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Operating system error on a device

The backup device cannot be opened.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: B-tree level mismatch, page does not match level from parent

There are two pages linked as parent (P_ID2) and child (P_ID1) in a B-tree. The level (LEVEL1) in the child page (P_ID1) does not comply with the level rules for B-trees, given the level (LEVEL2) in the parent page (P_ID2).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Failed to open database or transaction log file

An operating system error occurred when opening a transaction log file or a secondary database file of a database. The error message contains the specific operating system error encountered.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: The Service Broker or Database Mirroring Transport has started

SQL Server Service Broker or Database Mirroring transport has started. The Windows application log specifies whether the error was recorded by Service Broker or Database Mirroring the application name. This message is logged in the Windows application log as MSSQLSERVER event ID 9690. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	0
Severity	Defines Alert Severity.	0

MSSQL 2016: SQL Server Service Broker attempted to use an unsupported encryption algorithm

The rule triggers an alert when SQL Server Service Broker tries to use an unsupported encryption algorithm.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Object, index, page Test failed. Slot - Offset is invalid

The slot specified has an invalid offset (ADDRESS) in the page, according to the slot array.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: The query processor could not start the necessary thread resources for parallel query execution

Thread resources are scarce in the server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: A SQL Server Service Broker conversation has been closed due to an error

The rule triggers an alert when a SQL Server Service Broker conversation has been closed due to an error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Invalid reference to File ID

This error occurs when SQL Server uses an invalid file ID while performing some operation. This error can occur for several different scenarios.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Page is missing references from parent (unknown) and previous nodes. Possible bad root entry in sysindexes

Page P_ID1 was seen, but is not linked into the B-tree it thinks it belongs to.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: CHECKTABLE processing of object encountered page twice. Possible internal error or allocation fault

Page P_ID was encountered twice during the course of the scan.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: The user is not allowed to truncate the system table

The TRUNCATE TABLE statement cannot be issued for a system table, even if the allow updates configuration option is enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: Parent node for page was not encountered

Page P_ID was seen in a B-tree, and is linked into the B-tree level it is at. However, no index page was seen that had a reference to the page as a child page. This can happen at any level of the B-tree.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: XML : Size of data chunk requested from the stream exceeds allowed limit

SQL Server received an XML document that exceeds the allowed limit.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XTP Background Thread Error

The rule listens to event 41354 and raises a warning alert if the event is added to the log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: AppDomain failed to unload with error code

The rule triggers an application domain fails to unload because of some error. The Windows Application log may contain an information about the original error code and other diagnostic details

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server Assertion

SQL Server has raised an error. Under normal circumstances, SQL Server has posted a dump file in the log directory to help identify the actions that preceded the error. The error may have been caused by data corruption, an error in the client application, an error in SQL Server, network instability, or hardware failure.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not write a CHECKPOINT record in database because the log is out of space

The transaction log for the specified database has reached its capacity. The limit could be due to a configuration setting or to the amount of physical space available for one or more of the files configured for this database.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Unique table computation failed

Unique tables are used by the database client drivers, like Microsoft Access driver for SQL Server, to build updateable queries. For a given SELECT statement, the unique table identifies the table whose row values appear at most once in the result set. When reselecting a row from a result set, the values from the key columns of the unique table are enough to identify the row. This error is raised when the server is unable to compute the unique table.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XML : FOR XML EXPLICIT stack overflow occurred. Circular parent tag relationships are not allowed

The XML is not well-formed because the element tag nesting level has exceeded the number of columns in the table, one or more tags is self-referencing, or both. For more information about FOR XML EXPLICIT, see "Using EXPLICIT Mode" in Books Online.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: The Service Broker/Database Mirroring Transport could not listen for connections due to an error

The rule triggers an alert when Service Broker cannot listen on the specified port.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Cannot start service broker manager due to operating system error

The rule triggers an alert when SQL Server cannot start service broker manager due to operating system error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Maximum limit for connections has been reached

By default, SQL Server dynamically manages the memory needed for user connections. However, the maximum number of connections can be set to a fixed value by setting the user connections configuration option to a value other than 0. Setting the user connections option to a non-zero value is not recommended. If this option is set to a non-zero value and the specified number of connections is exceeded, any additional login attempts will fail with the above message. If the value is set to 1, the SQL Server instance may not start.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Internal Query Processor Error: The query processor encountered an unexpected error during the processing of a remote query phase

This is an internal query processor error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server could not allocate enough memory to start Service Broker task manager

SQL Server Service Broker cannot start Service Broker task manager.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Page allocated to object was not seen. Page may be invalid or have incorrect object ID information in its header

A page is allocated as specified, but was not seen with that object/index ID in its header. The page has a different index ID in its header, so there will be a matching 2534 (page allocated by another object) error for the page. The 2534 error corresponds to the object/index ID that is in the page's header.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Full Text Search: An unknown full-text failure occurred

This error can occur in various circumstances. Often it is related to permissions or missing files.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: XTP Unable Call Compiler

The rule listens to event 41312 and raises a warning alert if the event is added to the log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Login failed: Password expired

A user attempted to log into SQL Server with an expired password. The Windows security log will identify the user name under event ID 18487.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Internal Query Processor Error: The query processor could not obtain access to a required interface

This is an internal query processor error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table: Creating statistics for the following columns

sp_createstats has generated statistics for each eligible column in the current database. Computed columns and columns of the ntext, text, or image data types cannot be specified as statistics columns. Columns already having statistics are not touched (for example, the first column of an index or a column with explicitly created statistics). Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Service Broker was not able to allocate memory for cryptographic operations

The rule triggers an alert when SQL Server Service Broker is not able to allocate memory for cryptographic operations.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: IAM page is linked in the IAM chain for object

All IAM pages for an index must have the same index ID on them. In this case, one of the IAM pages linked into the IAM chain for index I_ID2 has index ID I_ID1 on it. There are three possible states of this error; they all mean the same thing, but differ in where the discovery is made.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server terminating because of system shutdown

SQL Server is shutting down because the server is shutting down. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Unable to open the physical file

SQL Server has failed to open the physical file..

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not recover database due to unresolved transaction outcomes

The recovery process found pending transactions for the specified database. These transactions were either distributed transactions that used Microsoft Distributed Transaction Coordinator (MS DTC), or the transactions were single instance cross-database transactions. There is not enough information available for the recovery process to either commit or roll back one or more of those transactions.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: The high key value on page is not less than the low key value in the parent, slot of the next page

A B-tree tree-level page contains a record for each child page, along with a key value for that child page. If the child page is a leaf-level page, all records on the page must have key values greater than or equal to the key value in the parent page. If the child page is a tree-level page, all records must have key values greater than the key value in the parent, except the first record, which must have a key value that exactly matches that in the parent.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: RESTORE could not start database

Internal structures could not be created during the database RESTORE. This is usually the side effect of another error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Logical consistency error after performing I/O on page

A consistency check failed when reading or writing a database page or transaction log block. The error message contains the specific type of consistency check that failed.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Unexpected end of file while reading beginning of backup set

The RESTORE operation failed because it could not read some portion of the backup file specified in the FROM clause. This error generally indicates that the file specified is a pre-SQL Server 7.0 backup or that the file is damaged.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1

Severity	Defines Alert Severity.	1
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MSSQL 2016: Table error: The text, ntext, or image node has wrong type

The text node is on the wrong text page type. If the parent (owner) of the node can be found, there will be an accompanying 8929 message providing details about the owner.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: An error occurred while processing SQL Server Service Broker mirroring routes

The rule triggers an alert when an error occurs while processing SQL Server Service Broker mirroring routes

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XTP Unable Load Compiled Dll

The rule listens to event 41309 and raises a warning alert if the event is added to the log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1

Severity	Defines Alert Severity.	1
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MSSQL 2016: Could not find CHECK constraint, although the table is flagged as having one

This error can occur when the creation of a constraint failed but for some reason the creation was not completely rolled back. It can also be caused by data consistency issue with the system tables in the database where the table listed in the message resides.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table: No columns without statistics found

There are no eligible columns in the current database on which to create statistics using sp_createstats . Computed columns and columns of the ntext, text, or image data types cannot be specified as statistics columns. Columns already having statistics are not touched (for example, the first column of an index or a column with explicitly created statistics).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Login failed: Password must be changed

A user attempted to log into SQL Server with a password that was set to the MUST_CHANGE option. The user will be identified in the Windows security log under MSSQLSERVER event ID 18488.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Failed to drop column from table

sp_repldropcolumn failed to drop the specified column on the publication database. The error could result from a failed system table update or from a failure of the underlying ALTER TABLE statement.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Error recovering database. Could not connect to MSDTC to check the completion status of transaction

When you are using MS DTC to manage a distributed transaction across multiple servers and a loss of connectivity occurs, the distributed transaction is left in an unknown or "in doubt" state. Common sources of interruptions are

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: XML : XML parsing error

This message passes through XML parsing errors. The text after "XML parsing error:" will vary. The cause will depend on the exact XML parsing error passed through.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: An error occurred in the Service Broker queue rollback handler

SQL Server Service Broker raises MSSQLSERVER event ID 8405 when an error prevents Service Broker from disabling a queue during a rollback.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: IO Completion Listener Worker appears to be non-yielding on Node

I/O completion ports are the mechanism by which Microsoft SQL Server uses a pool of threads that was created when the service was started to process asynchronous I/O requests. The message will specify what node the completion port is not yielding on. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not find Filegroup ID in sys.Filegroups for database

The metadata for a table contains a column ID that is greater than the largest column ID ever used in the table. This is a fatal error if the table is a system table, because the checks cannot continue when metadata is corrupt.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: SQL Server Out Of Memory

SQL Server has failed to allocate the sufficient amount of memory to run the query.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not create an instance of OLE DB provider

The rule triggers an alert when SQL Server could not create an instance of an OLE DB provider to connect to a linked server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Descriptor for object in database not found in the hash table during attempt to unhash it

A temporary table could not be found. The specific object ID will be available in the Windows Application log as event ID 617.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Permission denied on object

This error occurs when a Microsoft SQL Server user attempts an action, such as executing a stored procedure, or reading or modifying a table, for which the user does not have the appropriate privileges.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not find FOREIGN KEY constraints for table, although the table is flagged as having them

This error can occur when the creation of a constraint failed but for some reason the creation was not completely rolled back. It can also be caused by data consistency issue with the system tables in the database where the table listed in the message resides.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not obtain information about Windows NT group/user

A process executed within SQL Server or from the SQL Server Agent, such as the xp_logininfo stored procedure, a scheduled job, or a replication agent, needs to verify the credentials of a Windows-authenticated login. The attempt to retrieve those credentials on the domain failed for an unspecified reason.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: XML : XML error

This message passes through XML errors generated outside of SQL Server. The text after "XML error:" will vary. The cause will depend on the exact XML error passed through.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Failed to create AppDomain

The rule triggers an alert when an application tried to create an application domain, but failed. This may be caused when there is not enough memory to start the application domain.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: The next pointer of refers to page. Neither its parent were encountered. Possible bad chain linkage

A page (P_ID1) references its next page in the page chain (P_ID2), but page P_ID2 was not seen and was not referenced by any parent page in the B-tree.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: MSDTC on server is unavailable

The rule triggers an alert when MSDTC on the server is unavailable.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Failed to open primary database file

An operating system error occurred when opening the primary file of a database. The error message contains the specific operating system error encountered.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server Service Broker or Database Mirroring is running in FIPS compliance mode

The rule triggers an alert when SQL Server Service Broker or Database Mirroring is running in FIPS compliance mode. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	0
Severity	Defines Alert Severity.	0

MSSQL 2016: Login failed: Password too short

A user attempted to change the password, but the proposed password was too short. The Windows security log will identify the user name under MSSQLSERVER event ID 18464.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Cannot start service broker security manager

Service Broker security manger could not start.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: No slots are free to keep buffers for table

This is raised when SQL Server 2016 has an internal error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not create AppDomain manager

The rule triggers an alert when SQL Server fails to create an application domain manager

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server Service Broker transmitter shut down due to an exception or a lack of memory

The rule triggers an alert when SQL Server Service Broker transmitter stopped due to an error or a lack of memory. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not create a statement object using OLE DB provider

The rule triggers an alert when SQL Server fails to create a statement object with the OLE DB provider connected to a linked server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: An SQL Server Service Broker dialog detected an error

The rule triggers an alert when a SQL Server Service Broker dialog detects an error

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Cross object linkage: Parent page in object next refer to page not in the same object

The next page pointer of page P_ID2 and a child page pointer of page P_ID1 in a B-tree of the specified object points to a page (P_ID3) in a different object. Furthermore, pages P_ID1 and P_ID2 may themselves be in different objects.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Physical File Access Error

This rule generates an alert when a file activation error occurs. The rule is disabled by default.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: SQL Server cannot start the Service Broker event handler

SQL Server Service Broker cannot start the Service Broker event handler.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Cannot start SQL Server Service Broker on a database

The rule triggers an alert when SQL Server cannot start Service Broker on a database.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: An error occurred in the SQL Server Service Broker or Database Mirroring transport manager

An error occurred in the SQL Server Service Broker or Database Mirroring transport manager. The Windows application log or SQL Server error log may identify the specific error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Error while undoing logged operation in database

The recovery process could not undo (roll back) one or more transactions in the specified database. This error will be accompanied by a more specific error in the SQL Server error log and/or the event log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Cannot recover the master database. Exiting.

The master database is not in a recoverable state.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XML : XML document could not be created because server memory is low. Use sp_xml_removedocument to release XML documents

When you execute `sp_xml_preparedocument`, a parsed XML document is stored in the internal cache of SQL Server 2000. The MSXML parser uses up to one-eighth the total memory available for SQL Server. There is not enough memory in the portion of cache allocated to MSXML to open the document specified in the `sp_xml_preparedocument` statement. This may be because the specified document is very large or because documents already in that memory space do not leave enough space for the new document.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Database Backup Failed To Complete

BACKUP failed to complete the command.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: page is out of the range of this database

The page specified is marked as allocated, but is beyond the in-use portion of the file in which it resides (except in certain states, as described below).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Cannot determine the service account for SQL Server instance

This error occurs when a Transact-SQL statement contains mismatched single or double quotes. The SET QUOTED_IDENTIFIER setting will determine which combinations of single and double quotations marks are valid. For more information about SET QUOTED_IDENTIFIER, see "SET QUOTED_IDENTIFIER" in Books Online.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Log Backup Failed to Complete

This error indicates that SQL Server could not complete the BACKUP of the specified database due to a previous error. The BACKUP command that failed is given at the end of the error message. This message also appears in the Windows Application log.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1

Severity	Defines Alert Severity.	2
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MSSQL 2016: An error occurred while reading the log for database

This error indicates a failure while processing the transaction log during rollback, recovery, or replication.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: A default full-text catalog does not exist in the database or user does not have permission to perform this action

The full-text catalog does not exist, or the user does not have the appropriate permission to create a full-text index in the catalog.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Failed to initialize the Common Language Runtime (CLR) due to memory pressure

Windows could not allocate memory for the Microsoft Common Language Runtime (CLR) to initialize.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Full Text Search: Full-Text Search is not enabled for the current database. Use `sp_fulltext_database` to enable Full-Text Search

You have attempted to perform a full-text indexing in a database that is not enabled for full-text indexing. The database may have never been enabled for full-text, or it may have been restored or attached, which will automatically disable full-text indexing.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: XML : Failed to load Msxml2.dll

The Msxml2.dll file is missing from the computer where SQL Server is installed, or it could not be loaded from the system directory while processing an XML feature such as `sp_xml_preparedocument`. If the file exists, it may not be registered properly, or one of its dependencies may not exist.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: The low key value on page is not the key value in the parent

A B-tree tree level page contains a record for each child page, along with a key value for that child page. If the child page is a leaf-level page (that is, level 0), all records on the page must have key values greater than or equal to the key value in the parent page. If the child page is a tree-level page (that is, level > 0), all records must have key values greater than the key value in

the parent, except the first record, which must have a key value that exactly matches that in the parent.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: The text, ntext, or image node at page is referenced by page not seen in the scan

The text node was not referenced in any complex column in any heap or clustered index. It is effectively orphaned.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Could not allocate space for object in database because the Filegroup is full

The specified Filegroup has run out of free space.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Recovery of database detected possible identity value inconsistency in table

The database recovery process could not determine the current identity value for the specified table.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Database log file is full. Back up the transaction log for the database to free up some log space

The specified transaction log file has run out of free space.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Process Worker appears to be non-yielding on Scheduler

This error indicates that there is a possible problem with a thread not yielding on a scheduler.

Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Operating System error encountered

This message indicates that an error of some sort was returned from the operating system to a process within SQL Server. The process listed at the beginning of the message indicates which function within SQL Server received the error from the operating system. The exact operating system error number and text at the end of the message will vary depending on what problem the operating system encountered. This error is almost always seen in conjunction with other errors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Backup device failed - Operating system error

This message indicates that the operating system was unable to open or close a backup device (disk, tape, or pipe) specified as part of a BACKUP or RESTORE command. For more information on backup devices, refer to the Books Online topics, "Backup Devices" and "BACKUP."

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: I/O Request Is Taking Longer Than 15 Seconds To Complete

This rule generates an alert when In/Out request is taking longer than 15 seconds to complete. The rule is disabled by default.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes

Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Full Text Search: Could not find full-text index for database

The specified full-text index is unavailable.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: XML : Failed to instantiate class. Make sure Msxml2.dll exists in the SQL Server installation

The Msxml2.dll file is missing from the computer where SQL Server is installed, or it could not be loaded from the system directory while processing an XML feature such as sp_xml_preparedocument . If the file exists, it may not be registered properly, or one of its dependencies may not exist.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: CREATE FILE encountered operating system error

CREATE FILE encountered operating system error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Could not open referenced table

You are trying to add, drop, or modify a constraint on a table that has a schema stability lock (LCK_M_SCH_S or Sch-S) held on it. The schema stability lock is not compatible with DDL. The lock may be held by a query involving this table that is taking a long time to compile.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: The agent is suspect. No response within last minutes

This behavior occurs because the replication agent is too busy to respond when SQL Server Enterprise Manager polls the replication agent; therefore, SQL Server Enterprise Manager does not know the status of the replication agent and it cannot report whether the replication agent is functioning or not.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Cannot create file

SQL Server cannot create file because the file already exists.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Failed to finish full-text operation. The Filegroup is empty, read-only, or not online

The full-text operation did not finish because the Filegroup is empty, read-only, or not online.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: Extra or invalid key

Every data row in a table (heap or clustered index) must have exactly one matching index row in every non-clustered index over that table. This error means that a non-clustered index has an index row that does not match any data row.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Internal Query Processor Error: The query processor encountered an internal limit overflow

This is an internal query processor error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Login failed: Account locked out

A user attempted to log into the network with an account that has been locked out. The Windows security log will identify the user name under MSSQLSERVER event ID 18486.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: One or more indexes are damaged and must be repaired or dropped

This error provides more details about the problem described in error 8952. See that error for an explanation.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Wrong PageId in the page header

DBCC asked for page P_ID1. When the page was read from disk, the page ID in its header was found to be P_ID2.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Full Text Search: Search on full-text catalog failed with unknown result

The full-text query failed for an unspecified reason.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: The log for database is not available

An I/O error related to data integrity has occurred for the specified database. Either the log or data portion of the database could be damaged. SQL Server has made the log for that database unavailable to prevent further data integrity problems. The I/O error that led to the 9001 message should be reported in the SQL Server error log and/or the Windows event logs.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Table error: The previous link on page does not match the previous page that the parent, slot expects for this page

A B-tree is structured so that pages at a single level point to each other, in a doubly-linked list. Also, the pages' parent in the B-tree has a record for each of its children, with their keys and page IDs.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Common Language Runtime (CLR) not installed properly

This installation of the Common Language Runtime (CLR) is corrupted. The CLR is installed with the Microsoft .NET Framework.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Attempt to fetch logical page that belongs to different object

This error occurs when SQL Server detects that the allocation unit as stored on a database page does match the allocation unit associated with a specific operation, such as running a SELECT statement against a table.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Address is not aligned

The structure at address ADDRESS is not 4-byte aligned.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: An error occurred in the SQL Server Service Broker message dispatcher

An error occurred in the SQL Server Service Broker message dispatcher. The Windows application log or SQL Server error log may identify the specific error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Indexed view does not contain all rows that the view definition produces.

Refer to Books Online for more information on this error. This does not necessarily represent an integrity issue with the data in this database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: B-tree chain linkage mismatch.

There is a break in the logical page chain at some level in the B-tree specified (this can happen at any level, including the leaf level). A page P_ID2 is pointed to by the next page pointer of page P_ID1, but page P_ID2's previous page pointer points to a different page, P_ID3.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: A fatal error occurred in .NET Framework runtime

The rule triggers an alert when the .NET Framework shuts down due to an error.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Potential deadlocks exist on all schedulers on Node

This message is raised when the server fails to respond to new queries within a certain time limit.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Login failed: Password too simple

A user attempted to create a password, but the proposed password did not meet the Windows password complexity requirements policy. These are defined in the Password must meet complexity requirements policy setting. The Windows security log will identify the user name under MSSQLSERVER event ID 18466.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Invalid reference to LOB page

This error occurs when SQL Server uses an invalid reference to a LOB page in an operation. This error may occur due to several different reasons.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Table error: Index node page refers to child page and previous child, but they were not encountered

An index page (P_ID1) in a B-tree has child references to two neighboring lower-level pages (P_ID2 and P_ID3), but neither was seen.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1

Severity	Defines Alert Severity.	1
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MSSQL 2016: Checksum failure while page in cache

It is detected that a database page has been unexpectedly modified while in cache (by verifying the page checksum).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	2
Severity	Defines Alert Severity.	2

MSSQL 2016: Login failed. The workstation licensing limit for SQL Server access has already been reached

SQL Server will not provide connections to workstations after the licensing limit has been reached.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

SQL Server 2016 DB Engine - Rules (alerting)

[Deprecated] MSSQL 2016: Workflow failed to connect to the target system

A monitoring or discovery script doesn't have permissions to connect to the database or database is not accessible. This rule is considered to be obsolete in this Management Pack.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No

Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

SQL Server 2016 DB Engine - Rules (alerting)

MSSQL 2016: SQL Server 2016 DB Engine is restarted

Detects SQL Server 2016 DB Engine restart. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1
Unavailable Time (seconds)	The workflow will try to catch a service start event during this time frame, after event service stops.	900

SQL Server 2016 DB Engine - Rules (non-alerting)

MSSQL 2016: Broker Statistics: SQL SENDs Per Second

This counter displays the number of SQL Server messages sent per second. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. microsec/Write Comp

Collects the Windows "HTTP Storage:Avg. microsec/Write Comp" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Rows processed/sec (marked for unlink)

Collects the Windows "Rows processed/sec (marked for unlink)" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Number of Lockrequests Per Second

Collects the Windows "Number of Lockrequests Per Second" performance counter for each instance of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Cascading aborts/sec

Collects the Windows "Cascading aborts/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Transport: Send I/Os Per Second

This counter reports the number of transport send I/O operations per second that have completed. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Cursor deletes/sec

Collects the Windows "Cursor deletes/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Transport: Open Connection Count

This counter displays the number of open SQL Server Broker connections. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Total Rate Objects Published

Collects the Windows "Total Rate Objects Published" performance counter for the XTP IO Rate Governor.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Sweep expiring rows touched/sec

Collects the Windows "Sweep expiring rows touched/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Cursor inserts/sec

Collects the Windows "Cursor inserts/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Total Files Merged

Collects the Windows "Total Files Merged" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Transport: Message Fragment Sends Per Second

This counter displays the number of message fragment sent per second. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Log records written/sec

Collects the Windows "Log records written/sec" performance counter for XTP transaction logging in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Num Merges/sec

Collects the Windows "Num Merges/sec" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Write Bytes/Sec

Collects the Windows "HTTP Storage:Write Bytes/Sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Merges Installed

Collects the Windows "Merges Installed" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Transaction validation failures/sec

Collects the Windows "Transaction validation failures/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Cursor write conflicts/sec

Collects the Windows "Cursor write conflicts/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Activation: Task Limit Reached Per Second

This counter reports the number of times per second that a queue monitor would have started a new task, but did not because the maximum number of tasks for the queue is already running. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Insufficient Credits Waits/sec

Collects the Windows "Insufficient Credits Waits/sec" performance counter for the XTP IO Rate Governor.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Save points created/sec

Collects the Windows "Save points created/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Avg Transaction Segment Large Data Size

Collects the Windows "Avg Transaction Segment Large Data Size" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Log Blocks/sec

Collects the Windows "Log Blocks/sec" performance counter for the XTP IO Rate Governor.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Read Bytes/Sec

Collects the Windows "HTTP Storage:Read Bytes/Sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Logins per Second

Total number of logins started per second. This does not include pooled connections.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Statistics: Enqueued Transport Messages Per Second

The number of messages per second that have been placed onto the queues in the instance, counting only messages that arrived through the network. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 256K Page Fill %/Page Flushed

Collects the Windows "MtLog 256K Page Fill %/Page Flushed" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Parallel GC work item/sec

Collects the Windows "Parallel GC work item/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Save point refreshes/sec

Collects the Windows "Save point refreshes/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 256K Write Bytes/sec

Collects the Windows "MtLog 256K Write Bytes/sec" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. microsec/Read Comp

Collects the Windows "HTTP Storage:Avg. microsec/Read Comp" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Cursor scans started/sec

Collects the Windows "Cursor scans started/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Statistics: SQL RECEIVES Per Second

The number of SQL Server messages received per second. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: SQL Compilations Per Second

Collects the Windows "SQL Compilations Per Second" performance counter for each instance of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. microsec/Read

Collects the Windows "HTTP Storage:Avg. microsec/Read" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 64K Expand Count

Collects the Windows "MtLog 64K Expand Count" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Save point rollbacks/sec

Collects the Windows "Save point rollbacks/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: DB Engine Average Wait Time (ms)

SQL 2016 DB Engine Average Wait Time performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Outstanding HTTP Storage IO

Collects the Windows "HTTP Storage:Outstanding HTTP Storage IO" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Transport: Receive I/Os Per Second

This counter displays the number of I/Os received per second. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Num Serializations

Collects the Windows "Num Serializations" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: IoPagePool4K Free List Count

Collects the Windows "IoPagePool4K Free List Count" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 256K IOs Outstanding

Collects the Windows "MtLog 256K IOs Outstanding" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Io Issued/sec

Collects the Windows "Io Issued/sec" performance counter for the XTP IO Rate Governor.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Expired rows removed/sec

Collects the Windows "Expired rows removed/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: HTTP Storage IO failed/sec

Collects the Windows "HTTP Storage:HTTP Storage IO failed/sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Cursor unique violations/sec

Collects the Windows "Cursor unique violations/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: IoPagePool256K Total Allocated

Collects the Windows "IoPagePool256K Total Allocated" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Transactions aborted by user/sec

Collects the Windows "Transactions aborted by user/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Transport: Message Fragment Receives Per Second

This counter displays the number of message fragments received per second. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: MtLog 4K Page Fill %/Page Flushed

Collects the Windows "MtLog 4K Page Fill %/Page Flushed" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Rows returned/sec

Collects the Windows "Rows returned/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Total Transactions Per Second

Collects the Windows "Transaction Per Second" performance counter for the _Total instance of the databases performance object for each instance of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. microsec/Transfer

Collects the Windows "HTTP Storage:Avg. microsec/Transfer" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Sweep expired rows removed/sec

Collects the Windows "Sweep expired rows removed/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Phantom scans started/sec

Collects the Windows "Phantom scans started/sec" performance counter for the XTP engine's phantom processing subsystem.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Sweep scans started/sec

Collects the Windows "Sweep scans started/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 64K Page Fill %/Page Flushed

Collects the Windows "MtLog 64K Page Fill %/Page Flushed" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Checkpoints Completed

Collects the Windows "Checkpoints Completed" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Rows processed/sec

Collects the Windows "Rows processed/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Rows touched/sec

Collects the Windows "Rows touched/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: IoPagePool64K Total Allocated

Collects the Windows "IoPagePool64K Total Allocated" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Stale Rate Object Waits/sec

Collects the Windows "Stale Rate Object Waits/sec" performance counter for the XTP IO Rate Governor.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 4K Write Bytes/sec

Collects the Windows "MtLog 4K Write Bytes/sec" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Cursor updates/sec

Collects the Windows "Cursor updates/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Num Merges

Collects the Windows "Num Merges" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Transfers/sec

Collects the Windows "HTTP Storage:Transfers/sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Commit dependencies taken/sec

Collects the Windows "Commit dependencies taken/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Activation: Task Limit Reached

This counter reports the total number of times that a queue monitor would have started a new task, but did not because the maximum number of tasks for the queue is already running. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Tail Cache Page Count

Collects the Windows "Tail Cache Page Count" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 4K IOs Outstanding

Collects the Windows "MtLog 4K IOs Outstanding" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: IoPagePool256K Free List Count

Collects the Windows "IoPagePool256K Free List Count" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Tentatively-deleted rows touched/sec

Collects the Windows "Tentatively-deleted rows touched/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Flush Thread Frozen IOs/sec (256K)

Collects the Windows "Flush Thread Frozen IOs/sec (256K)" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Activation: Stored Procedures Invoked Per Second

This counter reports the total number of activation stored procedures invoked by all queue monitors in the instance per second. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Dusty corner scan retries/sec (Phantom-issued)

Collects the Windows "Dusty corner scan retries/sec (Phantom-issued)" performance counter for the XTP engine's phantom processing subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: IoPagePool4K Total Allocated

Collects the Windows "IoPagePool4K Total Allocated" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Reads/sec

Collects the Windows "HTTP Storage:Reads/sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Total Bytes/sec

Collects the Windows "HTTP Storage:Total Bytes/sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Merge Policy Evaluations

Collects the Windows "Merge Policy Evaluations" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. Bytes/Write

Collects the Windows "HTTP Storage:Avg. Bytes/Write" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Phantom expired rows removed/sec

Collects the Windows "Phantom expired rows removed/sec" performance counter for the XTP engine's phantom processing subsystem.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Read-only transactions prepared/sec

Collects the Windows "Read-only transactions prepared/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: SQL User Connections

Counts the number of users currently connected to SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Number of Lockwaits Per Second

Collects the Windows "Number of Lockwaits Per Second" performance counter for each instance of SQL 2016 DB Engine.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Transactions aborted/sec

Collects the Windows "Transactions aborted/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 64K Write Bytes/sec

Collects the Windows "MtLog 64K Write Bytes/sec" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: DB Engine CPU Utilization (%)

SQL 2016 DB Engine CPU Utilization (%) performance collection rule.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Cache Expiration Time	Specifies the maximum age of information from cache the workflow can use. May be omitted.	43200
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:18
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Main GC work items/sec

Collects the Windows "Main GC work items/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Flush Thread Frozen IOs/sec (4K)

Collects the Windows "Flush Thread Frozen IOs/sec (4K)" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Flush Thread 256K Queue Depth

Collects the Windows "Flush Thread 256K Queue Depth" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Core Merges Completed

Collects the Windows "Core Merges Completed" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. microsec/Write

Collects the Windows "HTTP Storage:Avg. microsec/Write" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 256K Expand Count

Collects the Windows "MtLog 256K Expand Count" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: MtLog 64K IOs Outstanding

Collects the Windows "MtLog 64K IOs Outstanding" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Lock Timeouts Per Second

Collects the Windows "Lock Timeouts Per Second" performance counter for each instance of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: HTTP Storage IO retry/sec

Collects the Windows "HTTP Storage:HTTP Storage IO retry/sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Writes/Sec

Collects the Windows "HTTP Storage:Writes/Sec" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: IoPagePool64K Free List Count

Collects the Windows "IoPagePool64K Free List Count" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. Bytes/Read

Collects the Windows "HTTP Storage:Avg. Bytes/Read" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: DB Engine Stolen Server Memory (MB)

SQL 2016 DB Engine Stolen Server Memory (MB) performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:24
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Engine Thread Count

SQL 2016 DB Engine Thread Count performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Cache Expiration Time	Specifies the maximum age of information from cache the workflow can use. May be omitted.	43200
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:18
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Flush Thread Frozen IOs/sec (64K)

Collects the Windows "Flush Thread Frozen IOs/sec (64K)" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Dusty corner scan retries/sec (user-issued)

Collects the Windows "Dusty corner scan retries/sec (user-issued)" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Buffer Cache Hit Ratio

Collects the Windows "Buffer Cache Hit Ratio" performance counter for each instance of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Log bytes written/sec

Collects the Windows "Log bytes written/sec" performance counter for XTP transaction logging in SQL Server.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Activation: Tasks Aborted Per Second

This counter reports the total number of activation stored procedure tasks that end with an error, or are aborted by a queue monitor for failing to receive messages. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Sweep expired rows touched/sec

Collects the Windows "Sweep expired rows touched/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Tail Cache Page Count Peak

Collects the Windows "Tail Cache Page Count Peak" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Sweep rows touched/sec

Collects the Windows "Sweep rows touched/sec" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Rows processed/sec (no sweep needed)

Collects the Windows "Rows processed/sec (no sweep needed)" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Phantom expired rows touched/sec

Collects the Windows "Phantom expired rows touched/sec" performance counter for the XTP engine's phantom processing subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Number of Deadlocks Per Second

Collects the Windows "Number of Deadlocks Per Second" performance counter for each instance of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Merge Requests Outstanding

Collects the Windows "Merge Requests Outstanding" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Merges Abandoned

Collects the Windows "Merges Abandoned" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Statistics: Enqueued Messages Per Second

The number of messages per second that have been placed onto the queues in the instance. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Phantom expiring rows touched/sec

Collects the Windows "Phantom expiring rows touched/sec" performance counter for the XTP engine's phantom processing subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: DB Engine Page Life Expectancy (s)

SQL 2016 DB Engine Page Life Expectancy (s) performance collection rule

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Activation: Tasks Started Per Second

This counter reports the total number of activation stored procedures started per second by all queue monitors in the instance. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Expired rows touched/sec

Collects the Windows "Expired rows touched/sec" performance counter for internal XTP engine cursors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Rows processed/sec (first in bucket and removed)

Collects the Windows "Rows processed/sec (first in bucket and removed)" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Transactions created/sec

Collects the Windows "Transactions created/sec" performance counter for XTP engine transactions in SQL Server.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: HTTP Storage: Avg. Bytes/Transfer

Collects the Windows "HTTP Storage:Avg. Bytes/Transfer" performance counter for SQL DB Engine that monitor Microsoft Azure Storage account.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: MtLog 4K Expand Count

Collects the Windows "MtLog 4K Expand Count" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Rows processed/sec (first in bucket)

Collects the Windows "Rows processed/sec (first in bucket)" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Broker Statistics: Broker Transaction Rollbacks

The number of rolled back transactions that contained DML-related to Service Broker. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: SQL Re-Compilations Per Second

Collects the Windows "SQL Recompiles Per Second" performance counter for each instance of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Num Serializations/sec

Collects the Windows "Num Serializations/sec" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Flush Thread 64K Queue Depth

Collects the Windows "Flush Thread 64K Queue Depth" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Dusty corner scan retries/sec (GC-issued)

Collects the Windows "Dusty corner scan retries/sec (GC-issued)" performance counter for the XTP engine's garbage collector.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Missed Credit Slots

Collects the Windows "Missed Credit Slots" performance counter for the XTP IO Rate Governor.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Avg Transaction Segment Size

Collects the Windows "Avg Transaction Segment Size" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Checkpoints Closed

Collects the Windows "Checkpoints Closed" performance counter for the XTP engine's storage subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Flush Thread 4K Queue Depth

Collects the Windows "Flush Thread 4K Queue Depth" performance counter for SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Phantom rows touched/sec

Collects the Windows "Phantom rows touched/sec" performance counter for the XTP engine's phantom processing subsystem.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

SQL Server 2016 DB Engine - Tasks

Stop SQL Agent Service from DB Engine

Stop SQL Agent Service from DB Engine

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Stop SQL Server Service

Stop SQL Server Service

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Start SQL Server Service

Start SQL Server Service

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Start SQL Agent Service from DB Engine

Start SQL Agent Service from DB Engine

Note that SQL Server Agent Windows Service is not supported by any edition of SQL Server Express.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Start SQL Full-text Filter Daemon Launcher Service

Start SQL Full-text Filter Daemon Launcher Service. Note that SQL Full-text Search feature is not available in any edition of SQL Server Express, except SQL Server Express with Advanced Services.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Stop SQL Full-text Filter Daemon Launcher Service

Stop SQL Full-text Filter Daemon Launcher Service. Note that SQL Full-text Search feature is not available in any edition of SQL Server Express, except SQL Server Express with Advanced Services.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Global Configuration Settings

Global Configuration Settings

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

SQL Server 2016 DB Engine - Console Tasks

SQL Profiler

SQL Management Studio

SQL Configuration Manager

SQL Server 2016 DB Engine Group

A group containing all instances of Microsoft SQL Server 2016 database engines

SQL Server 2016 DB Engine Group - Discoveries

MSSQL 2016: Populate SQL Server 2016 Instance Group

This discovery rule populates the Instance group with all SQL Server 2016 DBEngines.

MSSQL 2016: Populate Microsoft SQL Server 2016 Instance Group

This discovery rule populates the SQL Server 2016 Instance Group with all instances of SQL Server 2016 DB Engine.

SQL Server 2016 DB Engines With Many DBs Group

A group containing Microsoft SQL Server 2016 DB Engines With Many DBs

SQL Server 2016 DB Engines With Many DBs Group - Discoveries

MSSQL 2016: Populate SQL Server 2016 DB Engines With Many DBs Group

This discovery rule populates the SQL Server 2016 DB Engines With Many DBs Group with all SQL Server 2016 DB Engines with many DBs.

SQL Server 2016 DB File

Microsoft SQL Server 2016 database file

SQL Server 2016 DB File - Discoveries

MSSQL 2016: Discover Data Files

This discovery rule discovers the file information for each SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Discover Data Files

This discovery rule discovers the file information for each SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB File - Unit monitors

DB File Free Space Left

The monitor reports a warning when the free space (including both already allocated space and free space on the media) drops below the Warning Threshold setting, expressed as percentage of the sum of data size plus disk free space. The monitor reports a critical alert when the free space drops below the Critical Threshold.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Critical Threshold	The monitor will change its state to Critical if the value drops below this threshold. Being between this threshold and the warning threshold (inclusive) will result in the monitor being in a warning state.	10
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
Warning Threshold	The monitor will change its state to Warning if the value drops below this threshold.	20

SQL Server 2016 DB File - Rules (non-alerting)

MSSQL 2016: DB File Free Space Total (MB)

The amount of space left in a file in megabytes. Also includes space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB File Allocated Free Space (MB)

The amount of space left in a file in megabytes. Does not include space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB File Allocated Free Space (%)

The amount of space left in a file in percentage terms. Does not include space left on media hosting a file with autogrowth enabled

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB File Free Space Total (%)

The amount of space left in a file in percentage terms. Also includes space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Filegroup

Microsoft SQL Server 2016 database Filegroup

SQL Server 2016 DB Filegroup - Discoveries

MSSQL 2016: Discover Filegroups

This discovery rule discovers the Filegroup information for each SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Filegroup - Aggregate monitors

DB Filegroup Space

Monitors the aggregate space health for the Filegroup.

SQL Server 2016 DB Filegroup - Dependency (rollup) monitors

DB File Space (rollup)

The monitor oversees the space available in all Filegroups in the database and on related media. The space available on the media hosting files is only included as part of the free space if autogrowth is enabled for at least one file. This monitor is a dependency (rollup) monitor.

SQL Server 2016 DB Filegroup - Rules (non-alerting)

MSSQL 2016: DB Filegroup Free Space Total (%)

Collects free database Filegroup space in percentage terms.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Filegroup Allocated Free Space (MB)

The amount of space left in all files for this Filegroup in megabytes. Does not include space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Filegroup Allocated Free Space (%)

The amount of space left in all files for this Filegroup in percentage terms. Does not include space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated	0

	by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Filegroup Free Space Total (MB)

The amount of space left in all files for this Filegroup in megabytes. Also includes space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB FILESTREAM Filegroup

Microsoft SQL Server 2016 FILESTREAM Filegroup

SQL Server 2016 DB FILESTREAM Filegroup - Unit monitors

DB FILESTREAM Filegroup Free Space

The monitor reports a warning when the free space drops below the Warning Threshold setting, expressed as percentage of the sum of data size. The monitor reports a critical alert when the free space drops below the Critical Threshold.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Azure Maximum File Size (MB)	Azure Maximum File Size (MB)	1048576
Critical Threshold	The monitor will change its state to Critical if the value drops below this threshold. Being between this threshold and the warning threshold (inclusive) will result in the monitor being in a warning state.	10
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run	300

	before being closed and marked as failed.	
Warning Threshold	The monitor will change its state to Warning if the value drops below this threshold.	20

SQL Server 2016 DB FILESTREAM Filegroup - Rules (non-alerting)

MSSQL 2016: DB FILESTREAM Filegroup Free Space Total (MB)

Collects free FILESTREAM Filegroup data container space in megabytes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run	300

	before being closed and marked as failed.	
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MSSQL 2016: DB FILESTREAM Filegroup Free Space Total (%)

Collects free FILESTREAM Filegroup data container space in percentage terms.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Log File

Microsoft SQL Server 2016 database transaction log file

SQL Server 2016 DB Log File - Discoveries

MSSQL 2016: Discover Transaction Log File

This discovery rule discovers transaction log files for each SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Discover Transaction Log File

This discovery rule discovers transaction log files for each SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Log File - Unit monitors

DB Log File Free Space Left

The monitor reports a warning when the free space (including both already allocated space and free space on the media) drops below the Warning Threshold setting, expressed as percentage of the sum of data size plus disk free space. The monitor reports a critical alert when the free space drops below the Critical Threshold.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this	1048576

	value as a maximum storage capacity for each file.	
Critical Threshold	The monitor will change its state to Critical if the value drops below this threshold. Being between this threshold and the warning threshold (inclusive) will result in the monitor being in a warning state.	10
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
Warning Threshold	The monitor will change its state to Warning if the value drops below this threshold.	20

SQL Server 2016 DB Log File - Rules (non-alerting)

MSSQL 2016: DB Log File Allocated Free Space (MB)

The amount of space left in all log files for this database in megabytes. Does not include space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Log File Free Space Total (MB)

The amount of space left in all log files for this database in megabytes. Also includes space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Log File Allocated Free Space (%)

The amount of space left in all log files for this database in percentage terms. Does not include space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Log File Free Space Total (%)

The amount of space left in all log files for this database in percentage terms. Also includes space left on media hosting a file with autogrowth enabled.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576

Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Memory-Optimized Data Container

Microsoft SQL Server 2016 Database Memory-Optimized Data Filegroup container

SQL Server 2016 DB Memory-Optimized Data Container - Discoveries

[MSSQL 2016: Discover Memory-Optimized Data Filegroup Containers](#)

This discovery rule discovers Memory-Optimized Data containers for each SQL Server 2016 Database. Note that this discovery rule is enabled only for SQL editions supporting Memory-Optimized Data (64-bit Enterprise, Developer, or Evaluation edition).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

[MSSQL 2016: Discover Memory-Optimized Data Filegroup Containers](#)

This discovery rule discovers Memory-Optimized Data containers for each SQL Server 2016 Database. Note that this discovery rule is enabled only for SQL editions supporting Memory-Optimized Data (64-bit Enterprise, Developer, or Evaluation edition).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run	300

	before being closed and marked as failed.	
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SQL Server 2016 DB Memory-Optimized Data Container - Unit monitors

Memory-Optimized Data Filegroup Container Free Space

The monitor reports a warning when the available disk space for the Memory-Optimized Data Filegroup Container drops below the Warning Threshold setting, expressed as percentage of the sum of the Memory-Optimized Data Filegroup Container size plus disk free space. The monitor reports a critical alert when the free space drops below the Critical Threshold.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Critical Threshold	The monitor will change the state to Critical if the value drops below this threshold.	10
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Warning Threshold	The monitor will change the state to Warning if the value drops below this threshold.	20
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SQL Server 2016 DB Memory-Optimized Data Container - Rules (non-alerting)

MSSQL 2016: Memory-Optimized Data Filegroup container free space (MB)

Collects the amount of free space available for the Memory-Optimized Data Filegroup container (in Megabytes).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Memory-Optimized Data Filegroup container free space (%)

Collects the amount of free space available in the Memory-Optimized Data Filegroup container, expressed as percentage of the sum of disk free space and the size of data stored in the Memory-Optimized Data Filegroup container.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Memory-Optimized Data Filegroup

Microsoft SQL Server 2016 Database Memory-Optimized Data Filegroup

SQL Server 2016 DB Memory-Optimized Data Filegroup - Discoveries

[MSSQL 2016: Discover Memory-Optimized Data Filegroup](#)

This discovery rule discovers the Memory-Optimized Data Filegroup information for each SQL Server 2016 Database. Note that this discovery rule is enabled only for SQL editions supporting Memory-Optimized Data (64-bit Enterprise, Developer, or Evaluation edition).

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 DB Memory-Optimized Data Filegroup - Unit monitors

Average length of the row chains in the hash buckets

This monitor checks Hash Index Empty Buckets Count and Average Length of the Row Chains in the SQL Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Average Chain Length Threshold	Threshold for Average Chain Length that indicates the average length of the row chains in the hash buckets.	100
Display index count	The display count of not configured indexes according to the best practice.	5
Empty Bucket Percent Threshold	Threshold for Empty Bucket Percent that indicates the number of empty buckets in the hash index.	10
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

[Deprecated] Garbage Collection

The monitor reports a Critical State and raises an alert if the amount of space used by active rows in Memory-Optimized Data files drops below the Threshold setting, expressed as a percentage of the size of data files. Note: This monitor is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:05
Threshold	The collected value will be compared against this parameter.	50
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

Empty Bucket percent in the hash index

This monitor checks Hash Index Empty Buckets Count in the SQL Database.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Display index count	The display count of not configured indexes according to the best practice.	5
Empty Bucket Percent Threshold	Threshold for Empty Bucket Percent that indicates the number of empty buckets in the hash index.	10
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

XTP Configuration

This monitor checks the status of the SQL Database XTP Configuration. Note that this monitor works only with Enterprise, Developer, and Evaluation editions of Microsoft SQL Server. With other editions, the monitor will always be in healthy state.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	43200
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	

Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
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Memory-Optimized Data Stale Checkpoint File Pairs Ratio

The monitor reports a warning state and raises an alert when the ratio of stale checkpoint file pairs in Memory-Optimized Data Filegroup is higher than the specified thresholds.

Please note that the alerts are raised only if the corresponding database is reasonably big (300 or more checkpoint files total).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Checkpoint File Pairs Threshold	An alert would be generated if Checkpoint File Pairs total count greater than or equal to the Checkpoint File Pairs Threshold.	300
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach the thresholds before the state is changed.	6
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Threshold	The collected ratio will be compared against this parameter.	60
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	180

SQL Server 2016 DB Memory-Optimized Data Filegroup - Aggregate monitors

DB Memory-Optimized Data Filegroup Space

This monitor aggregates space health for the Memory-Optimized Data Filegroup.

SQL Server 2016 DB Memory-Optimized Data Filegroup - Dependency (rollup) monitors

DB Memory-Optimized Data Filegroup Container Space (rollup)

The monitor reports a warning when the available disk space for all Memory-Optimized Data Filegroup Containers drops below the Warning Threshold setting, expressed as percentage of the sum of the Memory-Optimized Data Filegroup Container size plus disk free space. The monitor reports a critical state when the free space drops below the Critical Threshold. This monitor is a dependency (rollup) monitor.

SQL Server 2016 DB Memory-Optimized Data Filegroup - Rules (non-alerting)

MSSQL 2016: XTP Memory Used (KB)

Collects the Windows "XTP Memory Used (KB)" performance counter for SQL 2016 Database with Memory-Optimized tables.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Memory Used By Indexes (MB)

Collects the amount of memory allocated for indexes defined for memory-optimized tables in the given SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:09
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

[Deprecated] MSSQL 2016: Memory-Optimized Data Garbage Collection Fill Factor (%)

Collects Garbage Collection Fill Factor (an amount of space used by active rows in Memory-Optimized Data files, expressed as a percentage of the size of data files) for Memory-Optimized Data Filegroup. Note: This rule is disabled by default. Please use overrides to enable it when

necessary.

This rule is considered to be obsolete in this Management Pack.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:05
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: XTP Controller DLC Peak Latency

Collects the Windows "XTP Controller DLC Peak Latency" performance counter for SQL 2016 Database with Memory-Optimized tables.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Precreated Checkpoint Files

Collects the number of Precreated Checkpoint Files in Memory-Optimized Data Filegroup.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Checkpoint File Pairs Under Construction

Collects the number of checkpoint file pairs under construction in Memory-Optimized Data Filegroup.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Merge Target Checkpoint File Pairs

Collects the number of merge target checkpoint file pairs in Memory-Optimized Data Filegroup.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the	0

	workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: XTP Controller Log Processed/sec

Collects the Windows "XTP Controller Log Processed/sec" performance counter for SQL 2016 Database with Memory-Optimized tables.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Active Checkpoint File Pairs

Collects the number of active checkpoint file pairs in Memory-Optimized Data Filegroup.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Memory-Optimized Data Filegroup Free Space Total (MB)

Collects the amount of free space available across all containers in the Memory-Optimized Data Filegroup (in Megabytes).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated	0

	by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: DB Memory-Optimized Data Filegroup Free Space Total (%)

Collects the amount of free space available across all containers in the Memory-Optimized Data Filegroup, expressed as percentage of the sum of disk free space and the size of data stored in the Memory-Optimized Data Filegroup.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Azure Maximum File Size (MB)	The maximum size of data file stored in Azure BLOB Storage. The workflow will consider this value as a maximum storage capacity for each file.	1048576
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft	0

	Support before changing this parameter.	
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: Checkpoint File Pairs Waiting For Log Truncation

Collects the number of Checkpoint Files Waiting For Log Truncation in Memory-Optimized Data Filegroup.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: XTP Controller DLC Latency/Fetch

Collects the Windows "XTP Controller DLC Latency/Fetch" performance counter for SQL 2016 Database with Memory-Optimized tables.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Memory Used By Tables (MB)

Collects the amount of memory allocated for memory-optimized tables in the given SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:09

Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300
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SQL Server 2016 Default Resource Pool

SQL Server 2016 Default Resource Pool

SQL Server 2016 Default Resource Pool - Discoveries

[MSSQL 2016: Discover Database Engine Resource Pools](#)

This rule discovers all resource pools for a given instance of SQL Server 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Ignore pools w/o Memory-Optimized Data	Must be 'true' or 'false'. When this property is set to true then discovery will discover only pools with bound databases. A database can be bound to a pool by using function sys.sp_xtp_bind_db_resource_pool.	true
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Event Log Collection Target

This object is used to collect errors from event log of computers that have SQL Server 2016 components.

SQL Server 2016 Event Log Collection Target - Discoveries

[SQL Server 2016 Event Log Collection Target Discovery](#)

This discovery rule discovers an event log collection target for a Microsoft SQL Server 2016. This object is used to collect module errors from event log of computers that have SQL Server 2016 components.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Event Log Collection Target - Rules (alerting)

MSSQL 2016: Monitoring failed

The rule traces failed monitoring workflows and generates error alerts.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Discovery warning

The rule traces problematic discovery workflows and generates warning alerts.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

MSSQL 2016: Discovery failed

The rule traces failed discovery workflows and generates error alerts.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Monitoring warning

The rule traces problematic monitoring workflows and generates warning alerts.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	1

SQL Server 2016 Installation Seed

It is a seed for Microsoft SQL Server 2016 installation. This object indicates that the particular server computer contains Microsoft SQL Server 2016 installation.

SQL Server 2016 Installation Seed - Discoveries

MSSQL 2016: Discover SQL Server 2016 DB Installation Source (seed)

This discovery rule discovers a seed for Microsoft SQL Server 2016 installation. This object indicates that the particular server computer contains Microsoft SQL Server 2016 installation.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Frequency in seconds		14400

SQL Server 2016 Instance Group

A group containing all SQL Server 2016 DB Engine Instances

SQL Server 2016 Instance Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Instance Group](#)

This discovery rule populates the SQL Server 2016 Instance group with all SQL Server 2016 DBEngines.

SQL Server 2016 Integration Services

An installation of Microsoft SQL Server 2016 Integration Services

SQL Server 2016 Integration Services - Discoveries

[MSSQL 2016: Discover SQL Server 2016 Integration Services \(Windows Server\)](#)

This object discovery discovers if SQL Server 2016 Integrate Services is installed.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400

SQL Server 2016 Integration Services - Unit monitors

[SQL Server Integration Services Windows Service](#)

This monitor checks the status of the SQL Integration Services service.

Note that all SQL Express editions support only SQL Server Import and Export Wizard along with Built-in data source connectors. There is no appropriate discovered object (service).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Alert only if service startup type is automatic	This may only be set to 'true' or 'false'. If set to 'false', then alerts will be triggered no matter what the startup type is set to. Default is 'true'.	true

SQL Server 2016 Integration Services - Rules (alerting)

MSSQL 2016: IS Package Failed

A package failed during execution.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: IS Service failed to load user defined Configuration file

The configuration file for the Integration Services service could not be loaded, when the services was started. By default, this file is named MSDtsSrvr.ini.xml. However, Integration Services can be configured by a registry setting to use any file name and file location.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: Package execution failed because the checkpoint file cannot be loaded

A package that is configured to use checkpoints and to always use the checkpoint file failed to restart.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1

Severity	Defines Alert Severity.	2
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MSSQL 2016: IS Service has attempted to stop a running package

The Integration Services service was used to send a request to the Integration Services runtime to stop a running package. Note: This rule is disabled by default. Please use overrides to enable it when necessary.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

MSSQL 2016: The package restarted from checkpoint file. Package was configured to restart from checkpoint and it did

A package configured to use checkpoints failed and then restarted from the point of failure using the checkpoint file.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	Yes
Priority	Defines Alert Priority.	1
Severity	Defines Alert Severity.	2

SQL Server 2016 Integration Services - Rules (non-alerting)

MSSQL 2016: SSIS 2016 Pipeline: Buffers Spooled

The number of buffers currently written to the disk. If the data flow engine runs low on physical memory, buffers not currently used are written to disk and then reloaded when needed. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: SSIS 2016 Pipeline: Rows Read

This counter indicates the number of rows that a source produces. The number does not include rows read from reference tables by the Lookup transformation. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: SSIS 2016 Pipeline: Rows Written

This counter displays the number of rows offered to a destination. The number does not reflect rows written to the destination data store. This counter is polled every fifteen minutes.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

SQL Server 2016 Integration Services - Tasks

Start SQL Integration Services Service

Start SQL Integration Services Service

Note that all SQL Express editions support only SQL Server Import and Export Wizard along with Built-in data source connectors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

Stop SQL Integration Services Service

Stop SQL Integration Services Service

Note that all SQL Express editions support only SQL Server Import and Export Wizard along with Built-in data source connectors.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Timeout Seconds		300

SQL Server 2016 Integration Services Installation Seed

It is a seed for Microsoft SQL Server 2016 Integration Services installation. This object indicates that the particular server computer contains Microsoft SQL Server 2016 Integration Services installation.

SQL Server 2016 Integration Services Installation Seed - Discoveries

MSSQL 2016: Discover SQL Server 2016 DB Installation Source (seed)

This discovery rule discovers a seed for Microsoft SQL Server 2016 installation. This object indicates that the particular server computer contains Microsoft SQL Server 2016 installation.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Frequency in seconds		14400

SQL Server 2016 Internal Resource Pool

SQL Server 2016 Internal Resource Pool

SQL Server 2016 Internal Resource Pool - Discoveries

MSSQL 2016: Discover Database Engine Resource Pools

This rule discovers all resource pools for a given instance of SQL Server 2016 DB Engine.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Ignore pools w/o Memory-Optimized Data	Must be 'true' or 'false'. When this property is set to true then discovery will discover only pools with bound databases. A database can be bound to a pool by using function sys.sp_xtp_bind_db_resource_pool.	true
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Local Database Group

A group containing a part of databases of a particular Microsoft SQL Server 2016 DB engine

SQL Server 2016 Local Database Group - Discoveries

[MSSQL 2016: Discover DB Group Seed](#)

This discovery rule discovers the file information for each SQL Server 2016 Database.

Name	Description	Default value
Enabled	Enables or disables the workflow.	No
Partition Count	Number of database groups.	10
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 Memory-Optimized Data Resource Pool Group

The group contains all SQL Server 2016 resource pools supported Memory-Optimized Data feature.

SQL Server 2016 Memory-Optimized Data Resource Pool Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Memory-Optimized Data Resource Pool Group](#)

This discovery rule populates the SQL Server 2016 Memory-Optimized Data Resource Pool Group with all SQL Server 2016 Resource Pools supported Memory-Optimized Data feature.

SQL Server 2016 Memory-Optimized Data Scope Group

SQL Server 2016 Memory-Optimized Data Scope Group contains all SQL Server Memory-Optimized Data objects such as Memory-Optimized Data Filegroups, Containers and Resource Pools.

SQL Server 2016 Memory-Optimized Data Scope Group - Discoveries

[MSSQL 2016: Memory-Optimized Data Scope Group Discovery](#)

This discovery rule populates the Alerts and Performance Data Scope group to contain all SQL Server Memory-Optimized Data objects. Note that this discovery rule is enabled only for SQL editions supporting Memory-Optimized Data (64-bit Enterprise, Developer, or Evaluation edition).

SQL Server 2016 Mirroring Groups Group

A group containing all SQL Server 2016 Mirroring groups

SQL Server 2016 Mirroring Groups Group - Discoveries

[MSSQL 2016: Populate SQL Server 2016 Mirroring Groups Group](#)

This discovery rule populates the SQL Server 2016 Mirroring Groups Group group with all SQL Server 2016 Mirroring Groups.

SQL Server 2016 Resource Pool

SQL Server 2016 Resource Pool Abstract Class

SQL Server 2016 Resource Pool - Rules (non-alerting)

[MSSQL 2016: Number of queries waiting for memory grants in the resource pool.](#)

Collects the Windows "Pending memory grants count" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No

Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
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MSSQL 2016: Target amount of memory the resource pool is trying to attain based on the settings and server state (KB)

Collects the Windows "Target memory (KB)" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Current memory target for query execution memory grant (KB)

Collects the Windows "Query exec memory target (KB)" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Number of query memory grants in the resource pool

Collects the Windows "Active Memory grant amount (KB)" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes

Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Used amount of memory in the resource pool (KB)

Collects the Windows "Used memory (KB)" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Maximum amount of memory the resource pool can have based on the settings and server state (KB)

Collects the Windows "Max memory (KB)" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Total amount of granted memory in the resource pool (KB)

Collects the Windows "Active memory grants count" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
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Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Current memory target for query compile (KB)

Collects the Windows "Compile Memory Target (KB)" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Number of query memory grant timeouts per second occurring in the resource pool

Collects the Windows "Memory grant timeouts/sec" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Current memory target for cache memory (KB)

Collects the Windows "Cache memory target (KB)" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

MSSQL 2016: Number of query memory grants per second occurring in the resource pool

Collects the Windows "Memory grants/sec" performance counter for each resource pool of SQL 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Frequency (seconds)	The recurring interval of time in seconds in which to run the workflow.	900

SQL Server 2016 Resource Pool Group

The group contains all SQL Server 2016 resource pools

SQL Server 2016 Resource Pool Group - Discoveries

MSSQL 2016: Discover SQL Server 2016 Database Engines

This discovery rule discovers all instances of SQL Server 2016 DB Engine running on Windows Servers. By default all instances are discovered and monitored. You can override the discovery to exclude one or more instances from being discovered using the Exclude List. This list takes a comma-separated list of instances or the * character to exclude all instances.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Exclude List	A comma-separated list of instances that should be excluded from discovery. You	

	can use the wildcard * to exclude all instances.	
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 User Resource Pool

SQL Server 2016 User Resource Pool Abstract Class

SQL Server 2016 User Resource Pool - Unit monitors

Resource Pool Memory Consumption

The monitor reports a critical state and raises an alert when the amount of memory used by the resource pool is greater than the Threshold setting, expressed as a percentage of memory available for Memory-Optimized Data tables for the given resource pool.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	True
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	300
Number of samples	Indicates how many times a measured value should breach a threshold before the state is changed.	6
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated	0

	by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:07
Threshold	The collected value will be compared against this parameter.	90
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	180

SQL Server 2016 User Resource Pool - Rules (non-alerting)

MSSQL 2016: User Resource Pool Memory Consumption (MB)

Collects amount of memory used by the resource pool (in Megabytes).

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0

Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:07
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

MSSQL 2016: User Resource Pool Memory Consumption (%)

Collects amount of memory used by the resource pool, expressed as a percentage of memory available for Memory-Optimized Data tables for the given Resource Pool.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Generate Alerts	Defines whether the workflow generates an Alert.	No
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	900
Script Delay (milliseconds)	This parameter sets the delay between consecutive T-SQL queries executed by the workflow. This may help to reduce the footprint generated by the workflow in case of large number of target objects. Please advise with Microsoft Support before changing this parameter.	0
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	00:07
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server 2016 User-Defined Resource Pools

SQL Server 2016 User-Defined Resource Pool

SQL Server 2016 User-Defined Resource Pools - Discoveries

[MSSQL 2016: Discover Database Engine Resource Pools](#)

This rule discovers all resource pools for a given instance of SQL Server 2016 DB Engine.

Name	Description	Default value
Enabled	Enables or disables the workflow.	Yes
Ignore pools w/o Memory-Optimized Data	Must be 'true' or 'false'. When this property is set to true then discovery will discover only pools with bound databases. A database can be bound to a pool by using function sys.sp_xtp_bind_db_resource_pool.	true
Interval (seconds)	The recurring interval of time in seconds in which to run the workflow.	14400
Synchronization Time	The synchronization time specified by using a 24-hour format. May be omitted.	
Timeout (seconds)	Specifies the time the workflow is allowed to run before being closed and marked as failed.	300

SQL Server Alerts Scope Group

SQL Server Alerts Scope Group contains SQL Server objects which can throw alerts.

SQL Server Alerts Scope Group - Discoveries

[MSSQL 2016: Alerts Scope Group Discovery](#)

This object discovery populates the Alerts Scope group to contain all SQL Server Roles.

[MSSQL 2016: Alerts Scope Group Discovery](#)

This object discovery populates the Alerts Scope group to contain all SQL Server Roles.

SQL Server Always On Availability Group

This group contains Microsoft SQL Server Always On Availability components

SQL Server Always On Availability Group - Dependency (rollup) monitors

[Availability Group Availability Rollup](#)

Availability Group Availability Rollup

[Availability Group Rollup](#)

Availability Group Performance Rollup

[Availability Group Configuration Rollup](#)

Availability Group Configuration Rollup

[Availability Group Security Rollup](#)

Availability Group Security Rollup

SQL Server Always On Availability Replicas Group

This group contains Microsoft SQL Server Always On Availability Replica components

SQL Server Always On Availability Replicas Group - Dependency (rollup) monitors

[Availability Replica Availability Rollup](#)

Availability Replica Availability Rollup

[Availability Replica Configuration Rollup](#)

Availability Replica Configuration Rollup

[Availability Replica Rollup](#)

Availability Replica Performance Rollup

[Availability Replica Security Rollup](#)

Availability Replica Security Rollup

SQL Server Always On Database Replicas Group

This group contains Microsoft SQL Server Always On Database Replicas components

SQL Server Always On Database Replicas Group - Dependency (rollup) monitors

[Database Replica Rollup](#)

Database Replica Performance Rollup

[Database Replica Security Rollup](#)

Database Replica Security Rollup

[Database Replica Configuration Rollup](#)

Database Replica Configuration Rollup

[Database Replica Availability Rollup](#)

Database Replica Availability Rollup

SQL Server Computers

This group contains all Windows computers that are running a component of Microsoft SQL Server

SQL Server Computers - Discoveries

[MSSQL 2016: Discover SQL Server Computer Group membership](#)

Populates the computer group to contains all computers running SQL Server.

[MSSQL 2016: Discover SQL Server Computer Group membership](#)

Populates the computer group to contains all computers running SQL Server.

SQL Server DB Engine Group

This group containing all instances of Microsoft SQL Server database engines

SQL Server DB Engine Group - Discoveries

[MSSQL: Populate SQL Server Instance Group](#)

This discovery rule populates the Instance group with all SQL Server DBEngines.

SQL Server Express 2016 DB Engine Group

A group containing all instances of Microsoft SQL Server Express 2016 database engines

SQL Server Express 2016 DB Engine Group - Discoveries

[MSSQL 2016: Populate SQL Server Express 2016 Instance Group](#)

This discovery rule populates the Express Instance group with all SQL Server Express 2016 DBEngines.

SQL Server Integration Services Group

This group containing all instances of Microsoft SQL Server Integration Services

SQL Server Integration Services Group - Discoveries

[MSSQL 2016: Integration Services Group Discovery](#)

This object discovery populates the Integration Services Group to contain all SQL Integration Services.

Appendix: Run As Profiles

Run As Profile	Workflow Type	Workflow
Microsoft SQL Server 2016 Discovery Run As Profile	Discovery	Discover Mirrored Databases for a Database Engine
	Discovery	Discover Mirrored Databases Witnesses
	Discovery	MSSQL 2016: Database Custom User Policy Discovery
	Discovery	MSSQL 2016: Database Replicas Always On Discovery
	Discovery	MSSQL 2016: Discover Data Files
	Discovery	MSSQL 2016: Discover Database Engine Resource Pools
	Discovery	MSSQL 2016: Discover Databases for a Database Engine
	Discovery	MSSQL 2016: Discover Filegroups
	Discovery	MSSQL 2016: Discover Memory-Optimized Data Filegroup
	Discovery	MSSQL 2016: Discover Memory-Optimized Data Filegroup Containers
	Discovery	MSSQL 2016: Discover SQL Server 2016 Agent Jobs
	Discovery	MSSQL 2016: Discover SQL Server 2016 Database Engines
	Discovery	MSSQL 2016: Discover SQL Server 2016 Integration Services (Windows Server)
	Discovery	MSSQL 2016: Discover SQL Server Agent for a DB Engine
	Discovery	MSSQL 2016: Discover Transaction Log File
	Discovery	MSSQL 2016: General Always On Discovery
	Discovery	MSSQL 2016: General Custom User Policy Discovery
	Monitor	Auto Close Configuration

Run As Profile	Workflow Type	Workflow
Microsoft SQL Server 2016 Monitoring Run As Profile	Monitor	Auto Create Statistics Configuration
	Monitor	Auto Shrink Configuration
	Monitor	Auto Update Statistics Async Configuration
	Monitor	Auto Update Statistics Configuration
	Monitor	Availability Database Data Synchronization
	Monitor	Availability Database Join State
	Monitor	Availability Database Suspension State
	Monitor	Availability Group Automatic Failover monitor
	Monitor	Availability Group Health Policy
	Monitor	Availability Group Health Policy
	Monitor	Availability Group Online monitor
	Monitor	Availability Replica Connection
	Monitor	Availability Replica Data Synchronization
	Monitor	Availability Replica Health Policy
	Monitor	Availability Replica Health Policy
	Monitor	Availability Replica Join State
	Monitor	Availability Replica Role
	Monitor	Availability Replicas Connection monitor
	Monitor	Availability Replicas Data Synchronization monitor
	Monitor	Availability Replicas Role monitor
	Monitor	Average length of the row chains in the hash buckets
	Monitor	Average Wait Time
	Monitor	Blocking Sessions
	Monitor	Buffer Cache Hit Ratio
	Monitor	CPU Utilization (%)
	Monitor	Database Backup Status
	Monitor	Database Health Policy

Run As Profile	Workflow Type	Workflow
	Monitor	Database Health Policy
	Monitor	Database Mirror Status
	Monitor	Database Mirror Witness Status
	Monitor	Database Mirroring Partners Status
	Monitor	Database Replica Health Policy
	Monitor	Database Replica Health Policy
	Monitor	Database Status
	Monitor	DB Chaining Configuration
	Monitor	DB File Free Space Left
	Monitor	DB FILESTREAM Filegroup Free Space
	Monitor	DB Free Space Left
	Monitor	DB Log File Free Space Left
	Monitor	DB Space Percentage Change
	Monitor	Disk Read Latency
	Monitor	Disk Write Latency
	Monitor	Empty Bucket percent in the hash index
	Monitor	Garbage Collection
	Monitor	Job Duration
	Monitor	Last Run Status
	Monitor	Long Running Jobs
	Monitor	Managed Backup System Health Policy
	Monitor	Managed Backup User Action Health Policy
	Monitor	Memory-Optimized Data Filegroup Container Free Space
	Monitor	Memory-Optimized Data Stale Checkpoint File Pairs Ratio
	Monitor	Page Life Expectancy
	Monitor	Page Verify Configuration
	Monitor	Recovery Model Configuration

Run As Profile	Workflow Type	Workflow
	Monitor	Resource Pool Memory Consumption
	Monitor	Service Pack Compliance
	Monitor	Service Principal Name Configuration Status
	Monitor	SQL Re-Compilation
	Monitor	SQL Server Windows Service
	Monitor	SQL Server Windows Service
	Monitor	Stolen Server Memory
	Monitor	Synchronous Replicas Data Synchronization monitor
	Monitor	Thread Count
	Monitor	Transaction Log Free Space (%)
	Monitor	Trustworthy Configuration
	Monitor	WSFC Cluster monitor
	Monitor	XTP Configuration
	Rule	MSSQL 2016: Active Checkpoint File Pairs
	Rule	MSSQL 2016: Checkpoint File Pairs Under Construction
	Rule	MSSQL 2016: Checkpoint File Pairs Waiting For Log Truncation
	Rule	MSSQL 2016: DB Active Connections Count
	Rule	MSSQL 2016: DB Active Requests Count
	Rule	MSSQL 2016: DB Active Sessions Count
	Rule	MSSQL 2016: DB Active Transactions Count
	Rule	MSSQL 2016: DB Allocated Space (MB)
	Rule	MSSQL 2016: DB Allocated Space Unused (MB)
	Rule	MSSQL 2016: DB Allocated Space Used (MB)
	Rule	MSSQL 2016: DB Disk Read Latency (ms)
	Rule	MSSQL 2016: DB Disk Write Latency (ms)
	Rule	MSSQL 2016: DB Engine Average Wait Time (ms)

Run As Profile	Workflow Type	Workflow
	Rule	MSSQL 2016: DB Engine CPU Utilization (%)
	Rule	MSSQL 2016: DB Engine Page Life Expectancy (s)
	Rule	MSSQL 2016: DB Engine Stolen Server Memory (MB)
	Rule	MSSQL 2016: DB Engine Thread Count
	Rule	MSSQL 2016: DB File Allocated Space Unused (%)
	Rule	MSSQL 2016: DB File Allocated Space Unused (MB)
	Rule	MSSQL 2016: DB File Free Space Total (%)
	Rule	MSSQL 2016: DB File Free Space Total (MB)
	Rule	MSSQL 2016: DB Filegroup Allocated Space Unused (%)
	Rule	MSSQL 2016: DB Filegroup Allocated Space Unused (MB)
	Rule	MSSQL 2016: DB Filegroup Free Space Total (%)
	Rule	MSSQL 2016: DB Filegroup Free Space Total (MB)
	Rule	MSSQL 2016: DB FILESTREAM Filegroup Free Space Total (%)
	Rule	MSSQL 2016: DB FILESTREAM Filegroup Free Space Total (MB)
	Rule	MSSQL 2016: DB Free Outer Space (MB)
	Rule	MSSQL 2016: DB Free Space Total (%)
	Rule	MSSQL 2016: DB Free Space Total (MB)
	Rule	MSSQL 2016: DB Log File Allocated Space Unused (%)
	Rule	MSSQL 2016: DB Log File Allocated Space Unused (MB)
	Rule	MSSQL 2016: DB Log File Free Space Total (%)
	Rule	MSSQL 2016: DB Log File Free Space Total (MB)
	Rule	MSSQL 2016: DB Memory-Optimized Data Filegroup Free Space Total (%)

Run As Profile	Workflow Type	Workflow
	Rule	MSSQL 2016: DB Memory-Optimized Data Filegroup Free Space Total (MB)
	Rule	MSSQL 2016: DB Transaction Log Free Space Total (%)
	Rule	MSSQL 2016: DB Transactions Per Second Count
	Rule	MSSQL 2016: Memory Used By Indexes (MB)
	Rule	MSSQL 2016: Memory Used By Tables (MB)
	Rule	MSSQL 2016: Memory-Optimized Data Filegroup container free space (%)
	Rule	MSSQL 2016: Memory-Optimized Data Filegroup container free space (MB)
	Rule	MSSQL 2016: Memory-Optimized Data Garbage Collection Fill Factor (%)
	Rule	MSSQL 2016: Merge Target Checkpoint File Pairs
	Rule	MSSQL 2016: Precreated Checkpoint Files
	Rule	MSSQL 2016: SQL Server 2016 DB Engine is restarted
	Rule	MSSQL 2016: SSIS 2016 Pipeline: Buffers Spooled
	Rule	MSSQL 2016: SSIS 2016 Pipeline: Rows Read
	Rule	MSSQL 2016: SSIS 2016 Pipeline: Rows Written
	Rule	MSSQL 2016: User Resource Pool Memory Consumption (%)
	Rule	MSSQL 2016: User Resource Pool Memory Consumption (MB)
Microsoft SQL Server 2016 Task Run As Profile	Task	Check Catalog (DBCC)
	Task	Check Database (DBCC)
	Task	Check Disk (DBCC)
	Task	Global Configuration Settings
	Task	Set Database Offline
	Task	Set Database Online

Run As Profile	Workflow Type	Workflow
	Task	Set Database to Emergency State
	Task	Start SQL Agent Service
	Task	Start SQL Agent Service
	Task	Start SQL Agent Service from DB Engine
	Task	Start SQL Full-text Filter Daemon Launcher Service
	Task	Start SQL Server Service
	Task	Stop SQL Agent Service
	Task	Stop SQL Agent Service
	Task	Stop SQL Agent Service from DB Engine
	Task	Stop SQL Full-text Filter Daemon Launcher Service
	Task	Stop SQL Server Service
Operational Database Account	Discovery	Discover SQL Server 2016 Mirroring Service
	Discovery	MSSQL 2016: Alerts Scope Group Discovery
	Discovery	MSSQL 2016: Alerts Scope Group Discovery
	Discovery	MSSQL 2016: Discover SQL Server Computer Group membership
	Discovery	MSSQL 2016: Discover SQL Server Computer Group membership
	Discovery	MSSQL 2016: Integration Services Group Discovery
	Discovery	MSSQL 2016: Memory-Optimized Data Scope Group Discovery
	Discovery	MSSQL 2016: Mirroring Common Group Discovery
	Discovery	MSSQL 2016: Mirroring Group Discovery
	Discovery	MSSQL 2016: Populate Microsoft SQL Server 2016 Computer Group
	Discovery	MSSQL 2016: Populate Microsoft SQL Server 2016 Instance Group

Run As Profile	Workflow Type	Workflow
	Discovery	MSSQL 2016: Populate SQL Availability Group
	Discovery	MSSQL 2016: Populate SQL Availability Replica Group
	Discovery	MSSQL 2016: Populate SQL Database Replica Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Agent Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Agents Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Components Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Computer Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Database Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Databases Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Instance Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Instance Group
	Discovery	MSSQL 2016: Populate SQL Server 2016 Mirroring Groups Group
	Discovery	MSSQL 2016: Populate SQL Server Express 2016 Instance Group
	Discovery	MSSQL 2016: Server Roles Group Discovery
	Discovery	MSSQL 2016: Server Roles Group Discovery
	Discovery	MSSQL 2016: SQL Server Always On Database Replicas Discovery
	Discovery	MSSQL 2016: SQL Server Always On Groups Discovery
	Discovery	MSSQL 2016: SQL Server Always On High Availability Group Discovery

Run As Profile	Workflow Type	Workflow
	Discovery	MSSQL 2016: SQL Server Always On Replicas Discovery
	Discovery	MSSQL: Populate SQL Server Instance Group

Appendix: Management Pack Reports

Report	Description
SQL Broker Performance	<p>Displays a chart with following performance metrics:</p> <ul style="list-style-type: none"> • Activation stored procedures invoked per second statistics • Activation task limit reached • Activation task limit reached per second statistics • Activation tasks aborted • Messages per second placed in the queue • Transport messages per second placed in the queue • SQL RECEIVES per second • SQL SENDs per second • Tasks started per second • Total transaction rollbacks • Transport message fragment RECEIVES per second • Transport message fragments • Transport open connection count statistics • Transport receive I/Os per second • Transport Send I/Os per second
SQL Server Database Engine Counters	<p>Displays a chart with following performance metrics:</p> <ul style="list-style-type: none"> • Buffer cache hit ratio • Lock timeouts per second • Number of deadlocks per second • SQL Re-compilations per second • SQL Compilations per second • Transactions per second
SQL Server Configuration	<p>When the objects supplied are of the type SQL Server 2016 DB Engine, displays the following discovered properties.</p> <ul style="list-style-type: none"> • Audit level • Authentication mode • Cluster • Enable error reporting • Error log location • Language • Master database location • Master database log location • Service pack version

Report	Description
	<ul style="list-style-type: none"> Version
SQL Server Lock Analysis	<p>When the objects supplied are of the type SQL Server 2016 DB Engine, displays a chart with the performance metric:</p> <ul style="list-style-type: none"> Number of deadlocks per second.
SQL Server Service pack	<p>When the objects supplied are of type SQL Server 2016 DB Engine, displays the following discovered properties:</p> <ul style="list-style-type: none"> Service Pack Version Version
SQL User Activity	<p>For each selected object, displays a chart with the performance metric:</p> <ul style="list-style-type: none"> Logins per second.
Top 5 Deadlocked Databases	<p>Displays a chart with the top five deadlocked databases and a table containing the list of databases and their counter values.</p>
User Connections by Day	<p>When the objects supplied are of type SQL Server 2016 DB Engine, displays a chart for each selected object with the performance metric:</p> <ul style="list-style-type: none"> SQL user connections.
User Connections by Peak Hours	<p>When the objects supplied are of the type SQL Server 2016 DB Engine, displays a chart for each selected object with following performance metrics:</p> <ul style="list-style-type: none"> SQL user connections.
SQL Database Space	<p>When the objects supplied are of the type SQL Server 2016 DB, displays a chart for each selected object with the following performance metrics:</p> <ul style="list-style-type: none"> DB Available Space Total (%) DB Available Space Total (MB) DB Allocated Space (MB)

Appendix: Known Issues and Troubleshooting

Error “missing performance counters” in OpsMgr event.

Issue: If required performance counters are not registered in the performance monitor, monitoring scenarios from the management pack cannot get required information and exit with the error.

Resolution: Register the counters. More information can be found [here](#).

Mirroring Diagrams are version-specific.

Issue: There are 4 Mirroring diagrams: SQL Mirroring 2008, 2012, 2014 and 2016. Each diagram displays object of the specified version and does not show related objects, which are hosted on other versions of SQL Server.

Resolution: If configured SQL Server Mirroring uses different versions of SQL Server, user should monitor all views related to the chosen versions.

Database Backup Status Monitor generates false positive alerts on Always On Group secondary replicas.

Issue: Database Backup Status monitor has no logic to track whether the database is a secondary replica or not. Since AOG has an advanced backup logic, which requires a backup for at least one of the databases involved, the monitor generates false positive alerts.

Resolution: The monitor is disabled by default and if user wants to enable the monitoring scenario for his environment, it is recommended to keep the monitor disabled for all servers, which are not used for storing the database backup. A specific scenario for AON MP could be implemented in the future.

State view may show only limited set of properties when opened via “State view” context action.

Issue: When you launch a State view via task pane or context menu In “SQL Server Roles” dashboard, the state view may display only limited set of properties and columns.

Resolution: Use details widget placed in lower half of the dashboard. Alternatively, you may use state views provided with the management pack.

Performance collection rules do not use data collection optimization.

Issue: Not all performance collection rules in this management pack use data collection optimization. This results in increased amount of data being stored in the Operations Manager databases.

Resolution: Performance data collection optimization has been eliminated from this management pack to guarantee an accuracy of hourly and daily aggregated performance data stored in SCOM Data Warehouse. If you need to reduce the amount of performance data been collected by this management pack, please consider reducing collection intervals.

SQL Server 2016 Databases Summary Dashboard displays all active alerts if nothing is selected

Issue: Currently the dashboard displays all active alerts if nothing is selected. It is a standard querying mechanism of the default Alerts widget.

Resolution: Make sure that at least one DB suites the filtering options.

Widgets cannot display performance data if DB name has special symbols

Issue: Default performance widgets and SQL Server 2016 Databases Summary Dashboard will not display performance data for Databases that have name with braces. This is a known SCOM issue. Moreover, if a database name is **_Total**, then cumulative performance metrics are collected for all databases, as long as **_Total** is a special object in a performance monitor.

Resolution: This is a known SCOM issue. There is no known workaround now.

Performance collection may fail on operating systems with localized (non-English) names of performance counters.

Issue: Monitoring workflows may fail to collect performance data when operating system is exposing localized (non-English) names of performance counters and Run As profile is configured to use low-privilege account. An error with Event Id 4001 and reason "Cannot add type. There were compilation errors." appears in the Operations Manager event log in such case.

Resolution: Administrative permissions are required to obtain the name of performance counters. Please grant local administrative permissions for account used to run SQL Server monitoring workflows.

Error "Rule/Monitor "<Rule/Monitor ID> cannot be initialized and will not be loaded" in OpsMgr event log.

Issue: Since the 6.6.7.6 version of Microsoft System Center Management Pack for SQL Server has been installed, the "Microsoft.SQLServer.2016.AlwaysOn.TransactionDelay" rule failed. The issue occurs because of the "Tolerance" and "Maximum Sample Separation" were deprecated and removed. Similar issue for other monitors/rules where the Optimization used before updating Microsoft System Center Management Pack for SQL Server

Log Name:	Operations Manager
Source:	HealthService
Date:	1/8/2015 10:44:20 AM
Event ID:	1102
Task Category:	Health Service
Level:	Error
Keywords:	Classic
User:	N/A
Computer:	
Description:	Rule/Monitor "Microsoft.SQLServer.2016.AlwaysOn.TransactionDelay" running for instance "xxxx" with id:"{284FC6CA-2A7F-3720-8D87-4DA0CAC6E288}" cannot be initialized and will

	not be loaded. Management group "SCOM 2012 Production"
--	--

Resolution: Re-create overrides for this Rule and then restart the Health Service.

Mirrored Databases Witnesses Discovery errors.

Issue: After installation of 6.6.7.6 or higher version of the MP, the following error messages may be received:

Management Group: Script: DiscoverSQL2016MirroringWitness.vbs. Instance: xxxxx : Mirroring witness discovery script 'DiscoverSQL2016MirroringWitness.vbs' for instance 'xxxxx' failed.

Resolution: By default, local system account has no permission on sys.database_mirroring_witnesses. Accordingly, it is necessary to grant the corresponding permission for the local system account (see [Low-privilege environments](#) section for details). If you do not want to change the security configuration (or you do not use mirroring at all) and want to stop getting such messages, you may disable this discovery. If you do not have mirroring and do not plan to use it, simply uninstall this discovery and the corresponding monitoring files.

SQL Configuration Manager may start snap-in of wrong version.

Issue: SQL Configuration Manager may start snap-in of wrong version. E.g., SQL Server 2016 task starts sqlservermanager11.msc snap-in, which stands for SQL Server 2012.

Resolution: Console tasks require installation of management tools corresponding to the target SQL Server Instance on the server where they are launched.

SQL DB Engine Service Monitor may fail if "Alert only if service startup type is automatic" override parameter is set to "FALSE".

Issue: SQL DB Engine Service Monitor may fail if "Alert only if service startup type is automatic" override parameter is manually set to "FALSE", and the string is put in uppercase.

Resolution: When overriding the abovementioned parameter, put the string to lowercase.

Some event log rules may not generate alerts for SQL deadlocks.

Issue: Some event log rules may not generate alerts in the Operations Manager for certain SQL deadlocks because such events are not logged by SQL server by default in order to prevent possible surcharge on the event log and the agent.

Resolution: To switch on the logging of the events mentioned above, run the following command in SQL Server Management Studio:

```
Exec sp_altermessage [event ID], 'WITH_LOG', 'true'
```

```
Select * from sys.messages where message_id=[event ID]
```

Please remember that this action may lead to overrun of the event log and the agent. Therefore, do not forget to switch off the logging of such events when you do not need it.

You can find the list of the corresponding event IDs in Appendix: Deadlocks Event Log Rules.

Some monitors may fail if a database name contains quotes.

Issue: The following monitors may fail if a database name contains two consecutive single quotation marks:

- Database Backup Status
- Auto Update Statistics Configuration
- Auto Update Statistics Async Configuration
- DB Chaining Configuration
- Recovery Model Configuration
- Page Verify Configuration
- Trustworthy Configuration
- Auto Close Configuration
- Auto Create Statistics Configuration
- Auto Shrink Configuration
- Database Status
- Database Health Policy
- Database Health Policy
- Availability Replicas Connection monitor
- Availability Group Automatic Failover monitor
- Availability Replica Connection
- Availability Replica Join State
- Synchronous Replicas Data Synchronization monitor
- WSFC Cluster monitor
- Availability Database Suspension State
- Availability Replica Role
- Availability Group Online monitor
- Availability Replica Data Synchronization
- Availability Replicas Role monitor
- Availability Replicas Data Synchronization monitor
- Availability Database Data Synchronization
- Availability Database Join State
- Availability Replica Health Policy
- Availability Replica Health Policy
- Database Replica Health Policy
- Database Replica Health Policy
- Availability Group Health Policy
- Availability Group Health Policy

Resolution: No resolution.

Alerts of event-based rules are not displayed in the appropriate views.

Issue: Alerts of event-based rules are displayed in the root SQL view instead of appropriate child views.

Resolution: No resolution.

Upon restart of an agent, workflows may throw WMI-related errors to the event log.

Issue: Upon agent restart, workflows start working simultaneously. At that, cached value can be outdated or non-existent and part of the workflows will get errors from WMI.

Resolution: No resolution.

SQL Policy discovery may work incorrectly.

Issue: SQL Policy discovery may produce the following issues:

1. Query that gets the list of databases has the following filter: *AND name not in ('master', 'model', 'msdb', 'tempdb', 'distribution')*, while replication distribution databases can have different names.
2. The discovery assumes that the policy is targeted on all databases, while actually any target can be specified separately (for example, a database with particular name, with ID greater than a certain value etc.).

Resolution: No resolution is available for the first issue. Resolution for the second issue is as follows: exclude policies that are not targeted on all databases.

Enabling of “Auto Close” database parameter blocks collection of the performance metrics.

Issue: If “Auto Close” parameter for the database is set to “True”, all performance rules return empty values.

Resolution: Set “Auto Close” database parameter back to “False”.

Double quotes in a database name may cause database console tasks failures.

Issue: Database console tasks take database names enclosed in double quotes as one of their arguments. A database name may contain any symbol including double quotes. If it does, the console tasks for this database will not work.

Resolution: No resolution.

“Database Status” monitor is constantly changing its status.

Issue: If “Auto Close” parameter for the database is set to “True”, “Database Status” monitor is constantly changing its status from “Healthy” to “Recovering/Restoring” and vice versa according to the timeout set in the override parameters.

Resolution: In view of the monitoring operation specifics, no resolution is required.

“Out of memory” errors are received in the Operations Manager

Issue: “Out of memory” errors are regularly received in the Operations Manager while the server has plenty of memory, and the instances are part of an Availability Group.

Resolution: Isolate the SQL Server WMI provider and increase the UploadTimeout.

To isolate the provider in its own host, follow the steps below from an elevated PowerShell:

`$a =`

```
[WMI]'Root\Microsoft\Sql\Server\ComputerManagement13:___Win32Provider.name="MSSQL_ManagementProvider"
```

```
$a.HostingModel = "NetworkServiceHost:SQL"  
$a.put()
```

To revert the change:

```
$a =  
[WMI]"Root\Microsoft\Sql\Server\ComputerManagement13:___Win32Provider.name='MSSQL_ManagementProvider'"  
$a.HostingModel = "NetworkServiceHost"  
$a.put()
```

To increase the unload timeout to 30 minutes, follow these steps:

- Open WBEMTEST.
- Click the “Connect” button.
- In the “Namespace”, enter *Root\Microsoft\Sql\Server\ComputerManagement13*, and then click the “Connect” button.
- Click the “Query” button.
- Enter *select * from ___win32provider where name = 'MSSQL_ManagementProvider'*, then click the “Apply” button.
- Double-click the resulting row.
- Double-click the “UnloadTimeout” value.
- Select “Not NULL” level, enter *00000000003000.000000:000*, and then click the “Save Property” button.
- Click the “Save Object” button.
- Click the “Close” button.

“WSFC Cluster” monitor is in the unhealthy state although the WSFC Service is running with no issues

Issue: The monitor “WSFC Cluster” is in the unhealthy state, however, the WSFC Service on an appropriate Windows Cluster node is operating normally. This happens when the SQL MP monitoring account does not have permissions on *sys.xp_instance_regread*.

Resolution: Grant the monitoring account with the execute permission on *sys.xp_instance_regread*:

```
GRANT EXECUTE ON [sys].[xp_instance_regread] TO ['<YourMonitoringAccount>'];
```

Appendix: Deadlocks Event Log Rules

Integration Services Monitoring

- Microsoft.SqlServer.2016.IS_Service_has_attempted_to_stop_a_running_package_5_Rule eventID: 336
- Microsoft.SqlServer.2016.IS_Service_failed_to_load_user_defined_Configuration_file_5_Rule eventID: 272

Monitoring

- Microsoft.SqlServer.2016.EventCollectionRule.DBEngine.CreateFileEncounteredOperatingSystemError eventID: 5123
- Microsoft.SqlServer.2016.EventCollectionRule.DBEngine.UnableToOpenThePhysicalFile eventID: 5120
- Microsoft.SqlServer.2016.Rule.XTP.CompilerFailure eventID: 41313
- Microsoft.SqlServer.2016.Rule.XTP.InsufficientDiskSpace eventID: 41822
- Microsoft.SqlServer.2016.Rule.XTP.UnableCallCompiler eventID: 41312
- Microsoft.SqlServer.2016.Rule.XTP.UnableLoadCompiledDll eventID: 41309
- Microsoft.SqlServer.2016.MSDTC_on_server__is_unavailable_1_5_Rule eventID: 8501
- Microsoft.SqlServer.2016.Could_not_create_a_statement_object_using_OLE_DB_provider_1_5_Rule eventID: 7305
- Microsoft.SqlServer.2016.Could_not_create_an_instance_of_OLE_DB_provider_1_5_Rule eventID: 7302
- Microsoft.SqlServer.2016.SQL_Server_Service_Broker_or_Database_Mirroring_Transport_stopped_5_Rule eventID: 9691
- Microsoft.SqlServer.2016.SQL_Server_SQL_Server_Service_Broker_attempted_to_use_an_unsupported_encryption_algorithm_5_Rule eventID: 28060
- Microsoft.SqlServer.2016.SQL_Server_Service_Broker_transmitter_shut_down_due_to_an_exception_or_a_lack_of_memory_5_Rule eventID: 28073
- Microsoft.SqlServer.2016.An_error_occurred_in_the_Service_Broker_manager_5_Rule eventID: 9645
- Microsoft.SqlServer.2016.The_Service_Broker_Database_Mirroring_Transport_could_not_listen_for_connections_due_to_an_error_5_Rule eventID: 9693

- Microsoft.SqlServer.2016.SQL_Server_Service_Broker_or_Database_Mirroring_is_running_in_FIPS_compliance_mode_5_Rule eventID: 28077
- Microsoft.SqlServer.2016.An_error_occurred_while_processing_SQL_Server_Service_Broker_mirroring_routes_5_Rule eventID: 9789
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- Microsoft.SqlServer.2016.Cannot_start_service_broker_activation_manager_5_Rule eventID: 9701
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- Microsoft.SqlServer.2016.Cannot_start_SQL_Server_Service_Broker_on_Database_5_Rule eventID: 9697
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- Microsoft.SqlServer.2016.SQL_Server_could_not_allocate_enough_memory_to_start_Service_Broker_task_manager_5_Rule eventID: 9695
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- Microsoft.SqlServer.2016.The_agent_is_suspect._No_response_within_last_minutes_1_5_Rule eventID: 20554

- Microsoft.SqlServer.2016.Job_step_cannot_be_run_because_the_subsystem_failed_to_load_1_5_Rule eventId: 212
- Microsoft.SqlServer.2016.Unable_to_connect_to_SQL_Server_1_5_Rule eventId: 207
- Microsoft.SqlServer.2016.RESTORE_could_not_start_database_1_5_Rule eventId: 3167
- Microsoft.SqlServer.2016.Unexpected_end_of_file_while_reading_beginning_of_backup_set_1_5_Rule eventId: 3208
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- Microsoft.SqlServer.2016.Database_cannot_be_opened_due_to_inaccessible_files_or_insufficient_memory_or_disk_space._See_the_SQL_Server_errorlog_for_details_1_5_Rule eventId: 945
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- Microsoft.SqlServer.2016.Full_Text_Search___Search_on_full_text_catalog_failed_with_unknown_result_1_5_Rule eventId: 7607
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- Microsoft.SqlServer.2016.Failed_to_finish_full_text_operation._The_filegroup_is_empty_read_only_or_not_online_5_Rule eventId: 9964
- Microsoft.SqlServer.2016.Full_Text_Search___An_unknown_full_text_failure_occurred_1_5_Rule eventId: 7608
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- Microsoft.SqlServer.2016.Full_Text_Search___Full_text_catalog_is_in_a_unusable_state._Drop_and_re_create_this_full_text_catalog_1_5_Rule eventId: 7624
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- Microsoft.SqlServer.2016.Full_Text_Search___Could_not_find_full_text_index_for_database_1_5_Rule eventId: 7606

- Microsoft.SqlServer.2016.Transaction_was_deadlocked_on_resources_with_another_process_and_has_been_chosen_as_the_deadlock_victim._Rerun_the_transaction_1_5_Rule eventID: 1205
- Microsoft.SqlServer.2016.The_provider_reported_an_unexpected_catastrophic_failure_1_5_Rule eventID: 10001
- Microsoft.SqlServer.2016.The_query_processor_could_not_start_the_necessary_thread_resources_for_parallel_query_execution_1_5_Rule eventID: 8642
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- Microsoft.SqlServer.2016.Table_error__B_tree_level_mismatch_page_does_not_match_level_from_parent__1_5_Rule eventID: 8931
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- Microsoft.SqlServer.2016.Table_error__The_high_key_value_on_page_is_not_less_than_the_low_key_value_in_the_parent_slot_of_the_next_page_1_5_Rule eventID: 8934
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- Microsoft.SqlServer.2016.Table_error__The_text_ntext_or_image_node_has_wrong_type_1_5_Rule eventID: 8963
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- Microsoft.SqlServer.2016.Table_error__Address_is_not_aligned_1_5_Rule eventID: 8940
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- Microsoft.SqlServer.2016.Table_error__Cross_object_linkage._Page_PGID_next_is_not_in_the_same_index_1_5_Rule eventID: 8982
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- Microsoft.SqlServer.2016.Indexed_view_does_not_contain_all_rows_that_the_view_definition_produces._Refer_to_Books_Online_for_more_information_on_this_error._This_does_not_necessarily_represent_an_integrity_issue_with_th_5_Rule eventID: 8908
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- Microsoft.SqlServer.2016.Table_error__The_previous_link_on_page_does_not_match_the_previous_page_that_the_parent_slot_expects_for_this_page_1_5_Rule eventID: 8935
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