

P A S S

**PROFESSIONAL ASSOCIATION
FOR SQL SERVER**

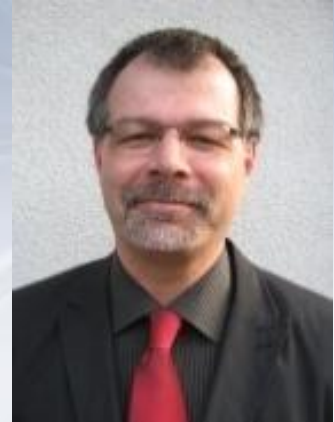
**PASS Deutschland e.V.
Regionalgruppe Köln/Bonn/Düsseldorf**

SQL Server Monitoring for Free

- **dbWarden Agenda**
 - **Vorstellung**
 - **Überblick**
 - **Installation**
 - **Settings**
 - **Jobs**
 - **Health Report**

SQL Server Monitoring for Free

- **IT Leiter / zertifizierter IT Projektleiter**
IT Team mit 7 Mitarbeitern betreuen ~250 Mitarbeiter
 - Projektleitungen
 - Einführung Ticketsystem
 - Auslagerung unternehmenskritischer Server in ein Rechenzentrum
 - SQL Server Upgrades
- **Teilzeit DBA**
SQL ab V 6.5 bis 2008 R2
BI – derzeit nur Reporting Server 2008 R2 und etwas SSIS
Anfang als Web Entwickler ASP.Net mit Portal DotNetNuke
- **PASS DE**
Technik hinter der PASS Webseite und dem Mailserver



Volker Bachmann

SQL Server Monitoring for Free

- **dbWarden Überblick**
 - **Kombination aus Skripten und Jobs zum SQL Server Monitoring**
 - **Warden = Wächter, Aufseher**
 - **Voraussetzungen:**
 - **SQL Server Agent, SQL 2005 ff.**
 - **DBMail setup (with a Global Public profile available.)**

SQL Server Monitoring for Free

- **dbWarden Überblick**
- **Monitoring:**
 - **File growth (LDF and TempDB)**
 - **Performance statistics (CPU, connections and memory, Buffer Cache)**
 - **Database blocking**
 - **Deadlock Reporting**
 - **Long running queries**
 - **Long running SQL jobs**

SQL Server Monitoring for Free

- **dbWarden Installation**
 - **Ein Skript**
 - **Erstellt**
 - **Datenbank dbWarden**
 - **Tabellen, SP, Trigger**
 - **Jobs, Operatoren**
 - **Data Dictionary Einträge**

SQL Server Monitoring for Free

• Alert Settings 1/2

AlertName	VariableName	Enabled	Value	Description
BlockingAlert	QueryValue	True	10	Value is in seconds
BlockingAlert	QueryValue2	True	20	Value is in seconds
CPUAlert	QueryValue	True	85	Value is in percentage
CPUAlert	QueryValue2	True	95	Value is in percentage
LogFiles	QueryValue	True	50	Value is in percentage
LogFiles	QueryValue2	True	20	Value is in percentage
TempDB	QueryValue	True	50	Value is in percentage
TempDB	QueryValue2	True	20	Value is in percentage
LongRunningJobs	QueryValue	True	60	Value is in seconds
LongRunningQueries	QueryValue	True	615	Value is in seconds
LongRunningQueries	QueryValue2	True	1200	Value is in seconds
HealthReport	ShowFullFileInfo	False	NULL	Variable for the HealthReport
HealthReport	ShowFullJobInfo	False	NULL	Variable for the HealthReport
HealthReport	ShowSchemaChanges	False	NULL	Variable for the HealthReport
HealthReport	ShowBackups	False	NULL	Variable for the HealthReport
HealthReport	ShowPerfStats	True	NULL	Variable for the HealthReport
HealthReport	ShowCPUStats	True	NULL	Variable for the HealthReport
HealthReport	ShowEmptySections	False	NULL	Variable for the HealthReport
HealthReport	ShowdbWardenSettings	True	NULL	Variable for the HealthReport

- Blocking alert – email if blocking occurs for 10 seconds, text at 20 seconds
- CPU alert – CPU percentage of SQL Server above 85%, send an email. (Job dbWarden_BlockingAlert.)
- Log files / TempDB – Usage of LDF or TempDB more than 50%, send an email. 20% space left, send text alert. (Job dbWarden_CheckFiles.)
- Long running jobs – 60 seconds – Only report long running jobs that run longer than 60 seconds. (Job dbWarden_LongRunningJobs)
- Long running queries – Send email when queries run longer than 615 seconds and text alerts after 1200 seconds. (Job dbWarden_LongRunningQueries)

SQL Server Monitoring for Free

• Alert Settings 2/2

AlertName	VariableName	Enabled	Value	Description
BlockingAlert	QueryValue	True	10	Value is in seconds
BlockingAlert	QueryValue2	True	20	Value is in seconds
CPUAlert	QueryValue	True	85	Value is in percentage
CPUAlert	QueryValue2	True	95	Value is in percentage
LogFiles	QueryValue	True	50	Value is in percentage
LogFiles	QueryValue2	True	20	Value is in percentage
TempDB	QueryValue	True	50	Value is in percentage
TempDB	QueryValue2	True	20	Value is in percentage
LongRunningJobs	QueryValue	True	60	Value is in seconds
LongRunningQueries	QueryValue	True	615	Value is in seconds
LongRunningQueries	QueryValue2	True	1200	Value is in seconds
HealthReport	ShowFullFileInfo	False	NULL	Variable for the HealthReport
HealthReport	ShowFullJobInfo	False	NULL	Variable for the HealthReport
HealthReport	ShowSchemaChanges	False	NULL	Variable for the HealthReport
HealthReport	ShowBackups	False	NULL	Variable for the HealthReport
HealthReport	ShowPerfStats	True	NULL	Variable for the HealthReport
HealthReport	ShowCPUStats	True	NULL	Variable for the HealthReport
HealthReport	ShowEmptySections	False	NULL	Variable for the HealthReport
HealthReport	ShowdbWardenSettings	True	NULL	Variable for the HealthReport

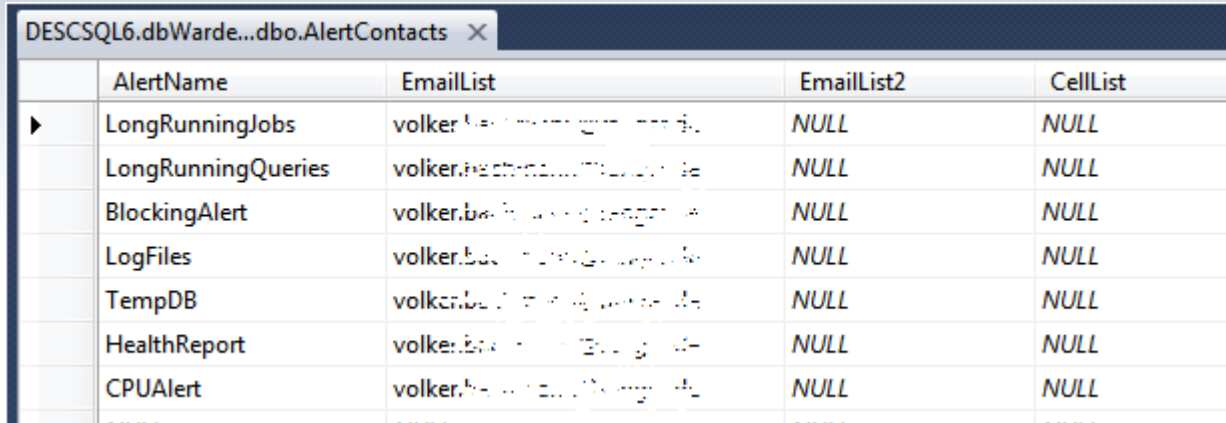
Health Report – The health report will be sent to the email in AlertContacts.
(Job dbWarden_HealthReport)

Show* - parts of the report can be enabled/disabled.

ShowdbWardenSettings – shows this Settings in the Report.

SQL Server Monitoring for Free

- Alert Contacts



AlertName	EmailList	EmailList2	CellList
LongRunningJobs	volker.b...	NULL	NULL
LongRunningQueries	volker.b...	NULL	NULL
BlockingAlert	volker.b...	NULL	NULL
LogFiles	volker.b...	NULL	NULL
TempDB	volker.b...	NULL	NULL
HealthReport	volker.b...	NULL	NULL
CPUALert	volker.b...	NULL	NULL

Alert Name ~ JobName

EmailList = primary recipients

EmailList2 = Carbon Copy recipients

CellList = text alerts – SMS,Pager, Net Send o.ä.im Job definiert

SQL Server Monitoring for Free

• Database Settings

DBName	SchemaTracking	LogFileAlerts	LongQueryAlerts	Reindex
DBA	False	False	False	False
dbWarden	False	False	True	False
DialogMaster	False	False	False	False
range - E...	False	False	False	False
range - T...	False	False	False	False
ReportServerEV	False	False	False	False
ReportServerEVTempDB	False	False	False	False
wi...	False	False	False	False
wi...	False	False	False	False

▪ **SchemaTracking** (T/F)

- Database trigger `dbo.tr_DDL_SchemaChangeLog` and table `dbo.SchemaChangeLog` are created on the database. Each time a schema modification is made the trigger puts a record into `SchemaChangeLog`.
- Reported in the Health Report.
SchemaTracking should not be on for replicated database and should be tested for other databases.

▪ **LogFileAlerts** (T/F) is used by the job `dba_CheckFiles`.

- If this is On for a database, it's `ldf` is monitored for growth.

▪ **LongQueryAlerts** (T/F) is used by the job `dba_LongRunningQueries` to know which databases to collect long running query information for.

- There is also a flag in the `DatabaseSettings` table to stop **Reindexing**. Work in progress.

SQL Server Monitoring for Free

• Verwendete Tabellen

TableName

AlertContacts

AlertSettings

BlockingHistory

CPUStatsHistory

DatabaseSettings

DataDictionary_Fields

DataDictionary_Tables

FileStatsHistory

HealthReport

JobStatsHistory

MemoryUsageHistory

PerfStatsHistory

QueryHistory

TableDescription

Contains email addresses for the Reports, Emails

Contains config data for SQL Jobs and Health Report

Contains history on blocking sessions and the victims

History table on CPU statistics

Settings to turn on/off schema tracking,
reindexing and alerts on specific databases

List of fields

List of tables

History table on DB file statistics

Storage for historical generated HealthReports

Contains statistical information on SQL Jobs

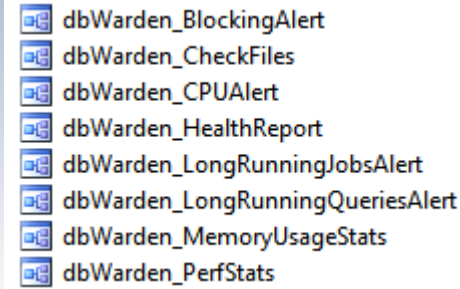
History table on memory usage statistics

Contains statistics on buffer cache hit ratio, blocked processes,
recompilations etc.

Storage for long running queries

SQL Server Monitoring for Free

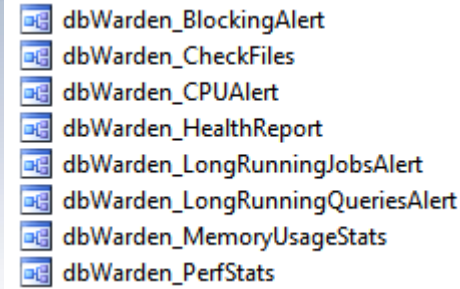
- Jobs 1/2



- **dbWarden_BlockingAlert** – Runs every 5 seconds.
SP: usp_CheckBlocking, store data into *BlockingHistory* table.
Trigger on this table that will send the alert.
- **dbWarden_CheckFiles** (LDF and TempDB) – Runs every 1 hour.
SP: usp_CheckFiles determine if TempDB or any LDF is growing.
collect data into the *FileStatsHistory* table.
- **dbWarden_CPUIAlert** – Runs every 5 minutes.
SP: usp_CPUProcessAlert
collect data into the *CPUSStatsHistory* table.
- **dbWarden_HealthReport** – Runs every day at 6am.
SP rpt_HealthReport and stores data in table *HealthReport*

SQL Server Monitoring for Free

- Jobs 2/2



- **dbWarden_LongRunningJobs** – Runs every 1 hour
SP: usp_LongRunningJobs
collect data into the *JobStatsHistory* table.
- **dbWarden_LongRunningQueries** – Runs every 5 minutes.
SP: usp_LongRunningQueries
stores data into the *QueryHistory* table.
- **dbWarden_MemoryUsageStats** – Runs every 15 minutes.
SP: usp_MemoryUsageStats using dm_os_sys_info
stores data into the *MemoryUsageHistory* table.
- **dbWarden_PerfStats** – runs every 5 minutes.
SP: usp_PerfStats using dm_os_performance_counters
collects data into the *PerfStatsHistory* table.

SQL Server Monitoring for Free

• Health Report

- standardmäßig 1 x täglich
- Inhalt z.T. steuerbar über Alert Settings (hier markiert mit T/F)
 - System, SQL Server, Disks, Clustering, Trace Flags (T/F)
 - Databases
 - File Info, File Stats - Last 24 Hours (T/F)
 - Mirroring, LogShipping, Replikation
 - Connections, Buffer Cache Hit Ratio, CPU Stats (T/F)
 - Agent Jobs – nur fehlerhaft / lange laufend oder Alles (T/F)
 - Backup (T/F)
 - Blocking, Error Log, DeadLock
 - Schema Tracking (T/F)
 - Empty Sections (T/F)
 - Show dbWarden Settings in Report (T/F)

SQL Server Monitoring for Free

- Health Report - System

- Server Details, SQL Server Details, Disks, Clustering, Trace Flags

System					
Name	Processor	Operating System	Total Memory (GB)	Uptime	Clustered
SQLSERVER	Intel(R) Xeon(R) CPU E5-2667 0 @ 2.90GHz	Windows NT x64 Version 6.1 (7601)	32.00	10 days, 11 hours & 48 minutes	Yes

SQL Server					
Version	Start Up Date	Used Memory (MB)	Collation	User Mode	SQL Agent
Microsoft SQL Server 10.50.2500.0 SP1 Standard Edition (64-bit)	Jan 7 2013 7:17PM	29491.000000	SQL_Latin1_General_CP1_CI_AS	Multi	Up

Disks		
Drive	Free Space (GB)	Cluster Share
C:	28.97	No
E:	693.28	Yes
F:	19.89	No
G:	19.90	No
L:	473.07	Yes
N:	442.83	Yes

Clustering	
Cluster Name	Active
SQLSERVER	No
SQLSERVER	Yes

Trace Flags			
Trace Flag	Status	Global	Session
1222	Active	On	Off

*T/F

SQL Server Monitoring for Free

- Health Report - Databases
 - Database Details

Databases							
Database	Create Date	Restore Date	Size (GB)	State	Recovery	Replicated	Mirrored
dba	Nov 7 2012 3:13PM	N/A	0.19336	ONLINE	SIMPLE	No	No
dba_2k5	Dec 8 2012 4:26PM	Dec 8 2012 4:26PM	1.30957	ONLINE	SIMPLE	No	No
master	Apr 8 2003 9:13AM	N/A	0.00488	ONLINE	SIMPLE	No	No
model	Apr 8 2003 9:13AM	N/A	0.00293	ONLINE	FULL	No	No
msdb	Apr 2 2010 5:35PM	N/A	0.32129	ONLINE	SIMPLE	No	No
[REDACTED]	Dec 8 2012 9:04AM	Dec 8 2012 9:04AM	153.20508	ONLINE	FULL	No	No
[REDACTED]	Nov 8 2012 10:23AM	Nov 8 2012 10:23AM	11.99512	ONLINE	SIMPLE	No	No
[REDACTED]	Jan 4 2013 1:51PM	Jan 17 2013 10:14PM	129.19629	ONLINE	SIMPLE	No	No
[REDACTED]	Dec 8 2012 9:24AM	Dec 8 2012 9:24AM	3.87793	ONLINE	FULL	No	No
[REDACTED]	Dec 8 2012 4:27PM	Dec 8 2012 4:27PM	0.00391	ONLINE	SIMPLE	No	No
[REDACTED]	Jan 4 2013 2:01PM	Jan 17 2013 10:22PM	2.70605	ONLINE	SIMPLE	No	No
Surveys	Dec 8 2012 9:28AM	Dec 8 2012 9:28AM	0.00781	ONLINE	SIMPLE	No	No
tempdb	Jan 7 2013 7:17PM	N/A	3.69922	ONLINE	SIMPLE	No	No

SQL Server Monitoring for Free

- Health Report - File Info

File Info										
Database	Drive	Filename	Logical Name	Group	VLF Count	Size (MB)	Growth	Used (MB)	Empty (MB)	% Empty
[dba]	E:	dba.mdf	dba	PRIMARY	0	184	1 MB	184	0	0.00
[dba]	L:	dba_log.LDF	dba_log	N/A	51	14	10 %	3	11	78.57
[dba_2k5]	E:	dba_2k5.mdf	dba	PRIMARY	0	1146	1 MB	1146	0	0.00
[dba_2k5]	L:	dba_2k5_1.ldf	dba_log	N/A	8	195	10 %	13	182	93.33
[master]	E:	master.mdf	master	PRIMARY	0	4	10 %	3	1	25.00
[master]	E:	mastlog.ldf	mastlog	N/A	4	1	10 %	0	1	100.00
[model]	E:	model.mdf	modeldev	PRIMARY	0	2	1 MB	1	1	50.00
[model]	E:	modellog.ldf	modellog	N/A	6	1	10 %	1	0	0.00
[msdb]	E:	MSDBData.mdf	MSDBData	PRIMARY	0	315	10 %	310	5	1.59
[msdb]	E:	MSDBLog.ldf	MSDBLog	N/A	51	14	10 %	10	4	28.57
[...]	E:	..._Data.MDF	..._Data	PRIMARY	0	132296	500 MB	130919	1377	1.04
[...]	L:	..._Log.LDF	..._Log	N/A	389	24586	1000 MB	59	24527	99.76
[...]	E:	..._Data.MDF	..._Data	PRIMARY	0	12182	500 MB	11899	283	2.32
[...]	L:	..._1.LDF	..._Log	N/A	12	101	100 MB	8	93	92.08

SQL Server Monitoring for Free

- Health Report - File Stats

File Stats								
Filename	# Reads	KBytes Read	# Writes	KBytes Written	IO Read Wait (MS)	IO Write Wait (MS)	Cumulative IO (GB)	IO %
dba.mdf	18157	2370224.00 (2314.67 MB)	2307	60520.00 (59.10 MB)	298023	10557	2.32	0.07
dba_log.LDF	84	908.00 (0.89 MB)	11212	106280.00 (103.79 MB)	408	14862	0.10	0.00
dba_2k5.mdf	809	6472.00 (6.32 MB)	20	160.00 (0.16 MB)	4721	21	0.01	0.00
dba_2k5_1.ldf	14	409.00 (0.40 MB)	19	64.00 (0.06 MB)	79	2	0.00	0.00
master.mdf	3071	58576.00 (57.20 MB)	657	5520.00 (5.39 MB)	18281	1123	0.06	0.00
mastlog.ldf	32	436.00 (0.43 MB)	1187	1554.00 (1.52 MB)	68	501	0.00	0.00
model.mdf	816	21480.00 (20.98 MB)	118	992.00 (0.97 MB)	3269	256	0.02	0.00
modellog.ldf	33	518.00 (0.51 MB)	122	449.00 (0.44 MB)	35	48	0.00	0.00
MSDBData.mdf	764852	9576816.00 (9352.36 MB)	25291	376504.00 (367.68 MB)	4268116	76210	9.49	0.29
MSDBLog.ldf	286	10724.00 (10.47 MB)	618315	597084.00 (583.09 MB)	883	566555	0.58	0.02
.....Data.MDF	20120414	3030854384.00 (2959818.73 MB)	3355426	53917072.00 (52653.39 MB)	407658677	77380139	2941.87	90.94
.....Log.LDF	58362	58004713.00 (56645.23 MB)	3191968	58003744.00 (56644.28 MB)	1170894	2498406	110.63	3.42
.....MDF	16462	143088.00 (139.73 MB)	804	7976.00 (7.79 MB)	41231	1280	0.14	0.00
.....LDF	18	425.00 (0.42 MB)	105	1770.00 (1.73 MB)	172	78	0.00	0.00

*T/F

SQL Server Monitoring for Free

- Health Report – Mirroring, LogShipping, Replikation

Mirroring

Database	State	Server Role	Partner Instance	Safety Level	Automatic Failover	Witness Server
dba_mirror	SYNCHRONIZED	PRINCIPAL	PDXDEVDB	HIGH SAFETY	No	N/A

Log Shipping

Primary Server	Primary DB	Monitoring Server	Secondary Server	Secondary DB	Last Backup Date	Backup Share
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Jan 18 2013 6:00AM	\\[REDACTED]\SQLBAK\LogShipping\...TLOG
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Jan 18 2013 6:00AM	\\[REDACTED]\SQLBAK\LogShipping\...TLOG
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Jan 18 2013 6:00AM	\\[REDACTED]\SQLBAK\LogShipping\...TLOG
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Jan 18 2013 6:00AM	\\[REDACTED]\SQLBAK\LogShipping\...TLOG

Replication Subscriptions

Publisher	Publisher DB	Publication	Distribution Job	Date Stamp	Immediate Sync?
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Apr 24 2012 3:46PM	Yes

Replication Distributor

Distributor	Distribution DB	Replication Share	Replication Account	Publisher Type
[REDACTED]	distribution	\\[REDACTED]\ReplData	[REDACTED]	MSSQLSERVER

Replication Publisher

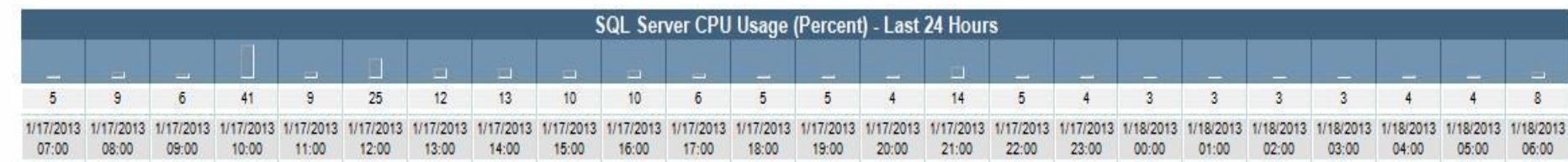
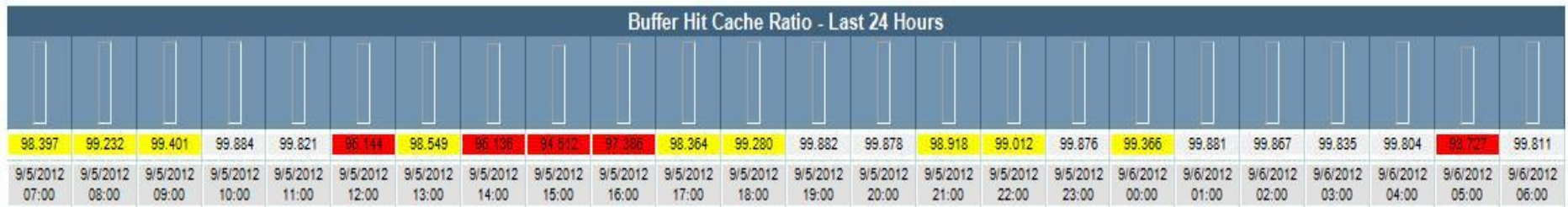
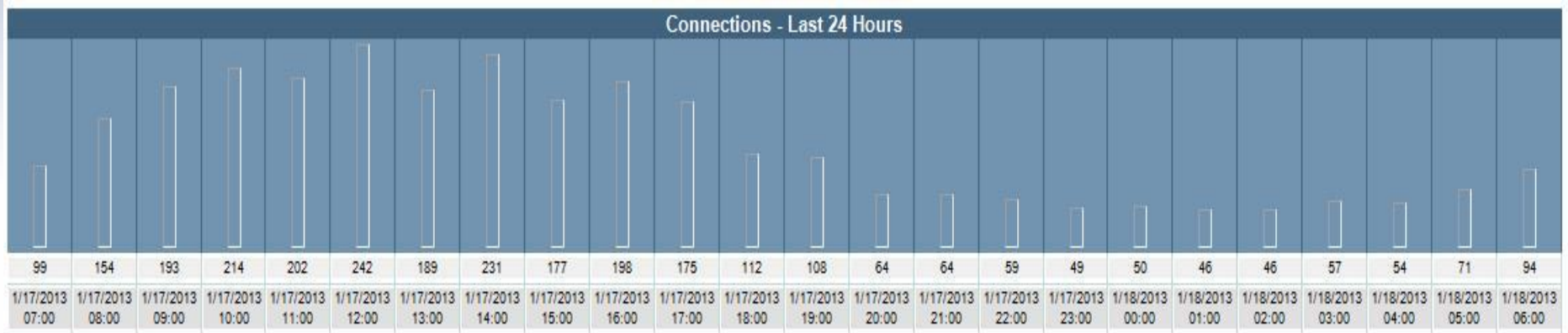
Publisher DB	Publication	Publication Type	Status	Warnings	Best Latency	Worst Latency	Average Latency	Last Dist Sync
[REDACTED]	[REDACTED]	Transactional Publication	Idle	N/A	710	710	710	Apr 24 2012 11:46PM

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SQL Server Monitoring for Free

- Health Report – Connections, Buffer Cache Hit Ratio, CPU*



*T/F

SQL Server Monitoring for Free

- Health Report – Agent Jobs*, Backups*

SQL Agent Jobs						
Job Name	Category	Enabled	Last Outcome	Last Date Run	Avg Run Time-ss(Mi)	Execution Time-ss(Mi)
dba_BlockingAlert	Database Monitoring	True	Success	Sep 6 2012 6:05AM	0.23 (0.003833)	0.00 (0.000000)
dba_CheckFiles	Database Monitoring	True	Success	Sep 6 2012 5:30AM	1.20 (0.020000)	1.00 (0.016666)
dba_CopyJobs	Database Maintenance	True	Success	Sep 5 2012 11:15PM	175.57 (2.926166)	142.00 (2.366666)
dba_CopyLogins	Database Maintenance	False	FAILED	Aug 23 2012 1:50PM	5.98 (0.099666)	9.00 (0.150000)
dba_CopySSISPkgs	Database Maintenance	True	Success	Sep 5 2012 11:30PM	623.58 (10.393000)	100.00 (1.666666)
dba_CPUAlert	Database Monitoring	False	Success	Jul 17 2012 12:55PM	0.68 (0.011333)	0.00 (0.000000)
dba_HealthReport	Database Monitoring	True	InProcess	Sep 6 2012 6:05AM	38.22 (0.637000)	31.00 (0.516666)
dba_IntegrityCheck	Database Maintenance	True	Success	Sep 2 2012 4:30PM	69.87 (1.164500)	29.00 (0.483333)

Backup Stats - Last 24 Hours								
Database	Type	File Name	Backup Set Name	Start Date	End Date	Size (GB)	Age (hh)	
...	Log	N:\SQLBAK\LogShipping\...LOGV..._20130118140000.trn	N/A	Jan 18 2013 6:00AM	Jan 18 2013 6:00AM	0.00	0	
...	Log	N:\SQLBAK\LogShipping\...LOGV..._20130118140000.trn	N/A	Jan 18 2013 6:00AM	Jan 18 2013 6:00AM	0.00	0	
...	Log	N:\SQLBAK\LogShipping\...LOGV..._20130118134500.trn	N/A	Jan 18 2013 5:45AM	Jan 18 2013 5:45AM	0.00	1	
...	Log	N:\SQLBAK\LogShipping\...LOGV..._20130118134500.trn	N/A	Jan 18 2013 5:45AM	Jan 18 2013 5:45AM	0.00	1	

*T/F

SQL Server Monitoring for Free

- Health Report – Blocking, Dead Locks, Error Log

Blocking								
Date Stamp	Database	Time(ss)	Victim SPID	Victim Login	Victim SQL Text	Blocking SPID	Blocking Login	Blocking SQL Text
Sep 5 2012 9:26AM		11.22	81		((@1 int)SELECT [FROM WHERE [JobNo]=@1	172		[dbo].[usp_ ByJobNo] @JobNo Int, @Passed bit OUTPUT AS -----

Deadlocks - Prior Day									
Date Stamp	Database	Victim Hostname	Victim Login	Victim SPID	Victim Objects	Locking Hostname	Locking Login	Locking SPID	Locking Objects
Jan 17 2013 7:02AM			sa	56	NA		sa	126	NA
Jan 17 2013 9:13AM				158	NA			267	NA
Jan 17 2013 10:11AM			sa	237	NA		sa	139	NA
Jan 17 2013 12:15PM			sa	146	NA		sa	108	NA
Jan 17 2013 2:35PM			sa	77	NA		sa	185	NA

Error Log - Last 24 Hours		
Log Date	Process Info	Message
Sep 6 2012 12:00AM	spid15s	This instance of SQL Server has been using a process ID of 5836 since 8/28/2012 8:18:48 PM (local) 8/29/2012 3:18:48 AM (UTC). This is an informational message only; no user action is required.
Sep 5 2012 2:25PM	Logon	Error: 18456, Severity: 14, State: 8.
Sep 5 2012 2:25PM	Logon	Login failed for user 'sa'. [CLIENT: 10.10.11.40]
Sep 5 2012 1:36PM	Logon	Error: 18456, Severity: 14, State: 8.
Sep 5 2012 1:36PM	Logon	Login failed for user 'sa'. [CLIENT: 10.10.11.40]

SQL Server Monitoring for Free

- Health Report - Schema Tracking
 - Verfolgung von Änderungen in Datenbanken

Schema Changes					
Create Date	Database	SQL Event	Object Name	Login Name	Computer Name
Sep 5 2012 3:09PM	request	CREATE_TRIGGER	tiu_Contact	request\mrounds	MROUNDS
Sep 5 2012 3:46PM	request	DROP_TABLE	BusinessRuleImplementation	request	MROUNDS
Sep 5 2012 3:46PM	request	CREATE_TABLE	BusinessRuleImplementation	request	MROUNDS
Sep 5 2012 3:46PM	request	ALTER_FUNCTION	fnc_ApplyBusinessRuleImplementation	request	MROUNDS

SQL Server Monitoring for Free

- **dbWarden Wunschliste**
 - **Zentrales Monitoring von einem Server aus**
 - **Auch Express?**
 - **Kurzer Überblicksreport ohne Logs usw.**

SQL Server Monitoring for Free

- **dbWarden Ressourcen**

Beschreibung:

<http://www.sqlservercentral.com/articles/Monitoring/98106/>

Forum:

<http://www.sqlservercentral.com/Forums/Topic1441532-3362-1.aspx>

Download, Wiki usw.:

<http://sourceforge.net/projects/dbwarden/>

SQL Server Monitoring for Free

- Vielen Dank für die Aufmerksamkeit!
- Fragen?
 - Fragen?
- vba@sqlpass.de