

Abfragen für das Enterprise Manager Repository

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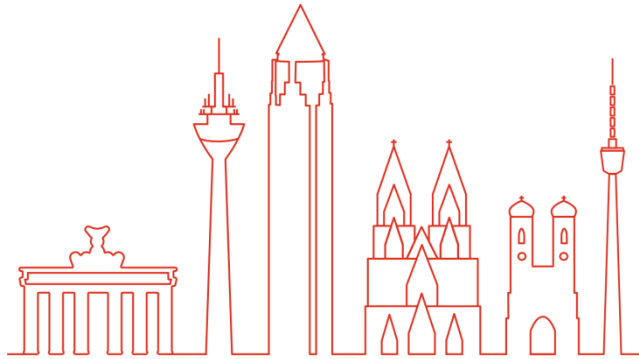
**Platinum
Partner**



Agenda

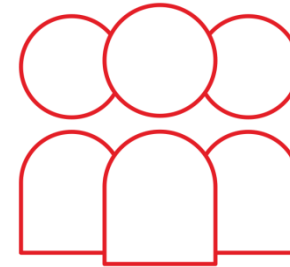
1. Allgemeines
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Logicalis Deutschland



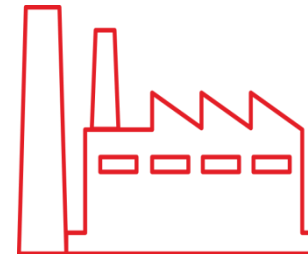
Niederlassungen

- Berlin, Düsseldorf, Frankfurt, Köln, München, Stuttgart



Mitarbeiter

- ca. 300 Mitarbeiter



Kunden

- Über 930 Kunden aus dem privaten und öffentlichen Bereich

Logicalis & Oracle

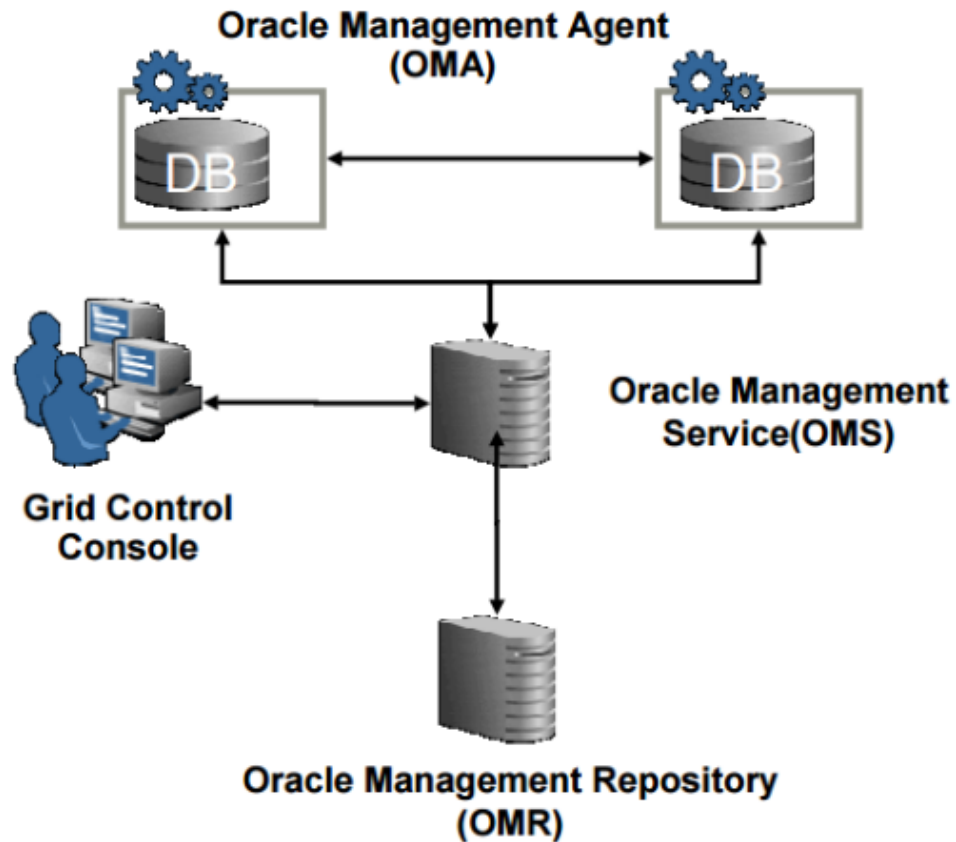


- Seit **über 20 Jahren** Oracle Partner
- **Umsatzstärkster Partner** bei Oracle in Deutschland
- **Exadata-Testmaschine** für Exadata und ZDLRA POCs, auch im Kunden-RZ möglich
- Zertifizierter Oracle **Exadata** und **ZDLRA Installation & Configuration Partner**
- **Eigene Cloud-Credits** für Oracle IaaS & PaaS POCs
- **Managed Service** für Exadata und Oracle IaaS und PaaS Cloud-Umgebungen
- **Lizenzberatung** durch unser zertifiziertes LMS Team

Allgemeines

Die nachfolgenden Slides enthalten Textausschnitte
und Grafiken aus Oracle Hersteller-Präsentationen

Enterprise Manager



- Repository: **OMR**
- Application Server: **OMS**
- Client Agenten: **OMA**
- EM-Konsole
- OMR ist Quelle für Abfragen
- OMA liefert Daten an OMR
=> Lücken während Blackouts

Quelle:
<https://blogs.oracle.com/pshuff/using-enterprise-manager-to-manage-cloud-services>

Zentrale Views

Was findet man wo?

Target

MGMT_TARGETS
MGMT_TARGET_TYPES

Metriken

MGMT\$METRIC_CURRENT
MGMT\$METRIC_HOURLY

MS SQL

CM\$MGMT_EMX_MSSQL_DBSETTING
MGMT_EMX_MSSQL_SQLSERVER

Target Properties

MGMT\$TARGET_PROPERTIES

Alerts

MGMT\$ALERT_CURRENT
MGMT\$ALERT_HISTORY

IBM DB2

MGMT_EMX_IBMDB2_DBINST
MGMT_EMX_IBMDB2_DBSYS

TARGET_TYPE 'ibm_db2_database', 'sybase_ase', 'oracle_database', 'microsoft_sqlserver_database'

Zentrale Dokumente

- **docs.oracle.com**
- **Cloud Control Management Repository Views Reference**
<https://docs.oracle.com/cd/cloud-control-13.3/EMVWS/EMVWS.pdf>
- System Monitoring Plug-in Metric Reference Manual for **Non Oracle Database Management**
https://docs.oracle.com/cd/E73210_01/EMMDA/EMMDA.pdf
- Für **Plugins** in der Booklist suchen:
 - **Oracle DBs:**
<https://docs.oracle.com/cd/cloud-control-13.3/EMDBM/toc.htm>
 - **IBM DB2:**
<https://docs.oracle.com/cd/cloud-control-13.3/PIDBT/toc.htm>
 - **MS SQL:**
<https://docs.oracle.com/cd/cloud-control-13.3/SQLPG/toc.htm>
 - **Middleware:**
<https://docs.oracle.com/cd/cloud-control-13.3/EMASM/toc.htm>

Von Null anfangen

- `select VIEW_NAME from DBA_VIEWS where owner='SYSMAN' and VIEW_NAME like 'MGMT%';`
=> interessante Kandidaten suchen
- **`SYSMAN.MGMT_TARGETS`**
`SYSMAN.MGMT_TARGET_TYPES`
- Welche Targets gibt es ?
`select distinct TARGET_TYPE from SYSMAN.MGMT_TARGET_TYPES;`
=> **oracle_database**
- Welche Konfiguration existiert im Repository ?
`select distinct PROPERTY_NAME from SYSMAN.MGMT_TARGET_PROPERTIES where TARGET_GUID in (select TARGET_GUID from SYSMAN.MGMT_TARGETS where TARGET_TYPE='oracle_database');`
=>
AdrHome
alert_log_file
CPUCount
DBVersion
Port

Über Plugins Infos im Repository nutzen

- `select view_name from DBA_VIEWS where owner='SYSMAN' and view_name like '%MSSL%';`

```
VIEW_NAME
```

```
-----
```

```
MGMT_EMX_MSSL_SQLSERVER
```

```
MGMT_EMX_MSSL_REGSETTING
```

```
MGMT_EMX_MSSL_DBSETTING
```

```
MGMT_EMX_MSSL_HADR_DBS
```

```
CM$MGMT_EMX_MSSL_SQLSERVER
```

```
CM$MGMT_EMX_MSSL_DBSETTING
```

```
CM$MGMT_EMX_MSSL_REGSETTING
```

- `select PRODUCT, VERSION from sysman.MGMT_EMX_MSSL_SQLSERVER;`

```
=>
```

```
Microsoft SQL Server 2012 (SP3-CU10) (KB4025925)
```

```
Standard Edition (64-bit)
```

```
11.0.6607.3 (X64)
```

Metriken

- `select distinct METRIC_CATEGORY_NAME from sysman.MGMT$METRIC_CATEGORIES;`
=> z.B.
Availability
Capacity
Error
Fault
Performance
- `select distinct TARGET_TYPE from sysman.MGMT$METRIC_CATEGORIES;`
=> z.B.
host
oracle_database
oracle_exa_cisco_switch
oracle_exadata
oracle_exadata_dbsys
oracle_exa_ilom
oracle_listener

Die Nadel im Heuhaufen: I/O Metriken

- `select distinct METRIC_NAME, METRIC_LABEL from sysman.MGMT$METRIC_CURRENT where upper(METRIC_LABEL) like '%THROUGHPUT%' order by 1;`

METRIC_NAME	METRIC_LABEL
instance_throughput	Throughput

- `select distinct METRIC_NAME, COLUMN_LABEL from sysman.MGMT$METRIC_CURRENT where METRIC_NAME = 'instance_throughput' and TARGET_TYPE='oracle_database';`

METRIC_NAME	COLUMN_LABEL
instance_throughput	I/O Megabytes (per second)

Host I/O-Metriken

- **Hosts: andere Metrik!**

```
select distinct METRIC_NAME, METRIC_LABEL from sysman.MGMT$METRIC_CURRENT where  
TARGET_TYPE='host';
```

=>

METRIC_NAME	COLUMN_LABEL
DiskActivity	Average Disk I/O Service Time (ms)
DiskActivity	Average Disk I/O Wait Time (ms)
DiskActivity	Average Outstanding Disk I/O Requests
DiskActivity	Average Run Time (ms)
DiskActivity	Bulk IO Ticks
DiskActivity	Difference in Number of Reads
DiskActivity	Difference in Number of Writes
DiskActivity	Disk Block Writes (per second)
DiskActivity	Disk Blocks Reads (per second)
DiskActivity	Disk Device Busy (%)
DiskActivity	Disk Reads (per second)
DiskActivity	Disk Writes (per second)

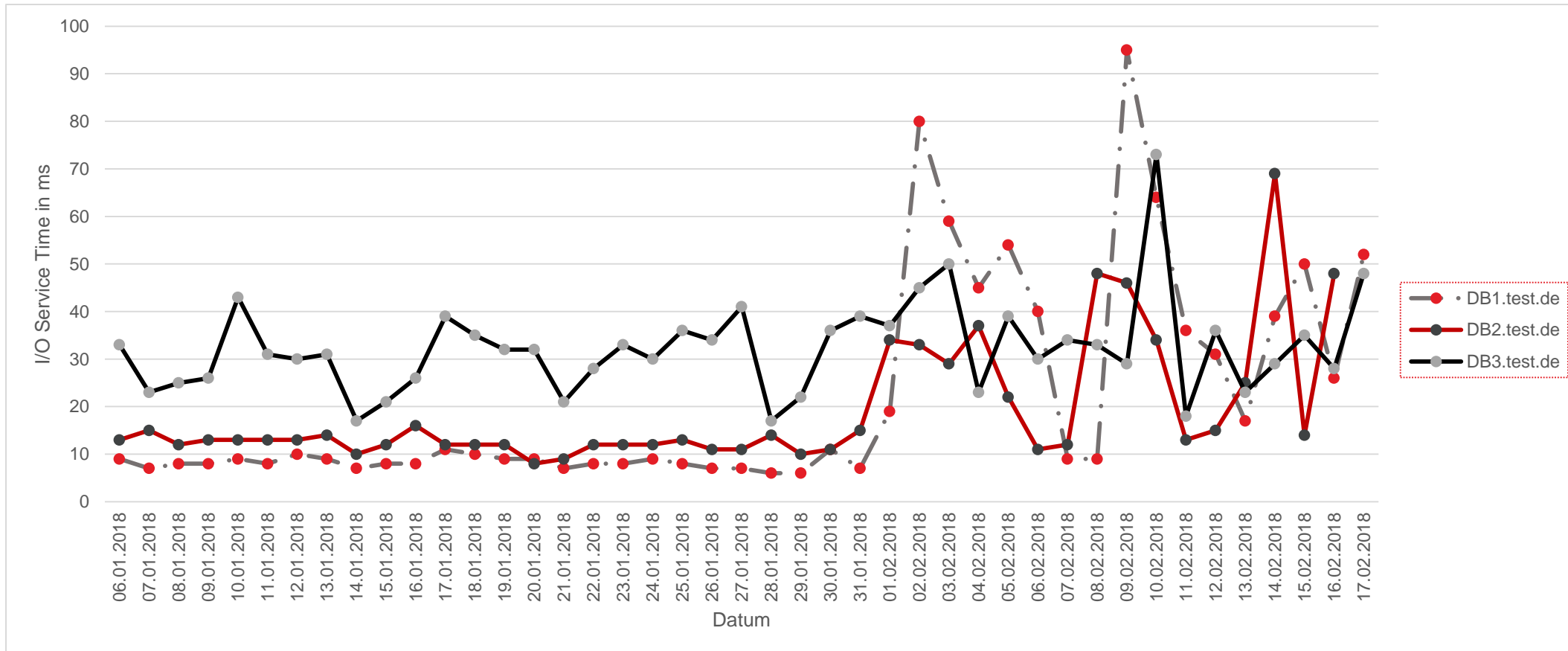
- <https://docs.oracle.com/cd/cloud-control-13.3/EMFHM/toc.htm>

Noch nichts Passendes dabei ?

- `select distinct METRIC_NAME, METRIC_COLUMN, COLUMN_LABEL from sysman.MGMT$METRIC_CURRENT where TARGET_TYPE='host' and METRIC_NAME='DiskActivitySummary';`
=>

METRIC_NAME	METRIC_COLUMN	COLUMN_LABEL
DiskActivitySummary	maxavserv	Max Average Disk I/O Service Time (ms) amongst all disks
DiskActivitySummary	maxiospersec	Max Disk I/O (per sec) made by a single disk
DiskActivitySummary	totiosmade	Total Disk I/O made across all disks (per second)
- `select md.TARGET_NAME, md.ROLLUP_TIMESTAMP as Datum, round(md.AVERAGE) as "I/O Service Time in ms" from sysman.MGMT$METRIC_DAILY md where md.TARGET_TYPE='host' and md.TARGET_NAME in ('DB1.test.de', 'DB2.test.de', 'DB3.test.de') and md.METRIC_NAME='DiskActivitySummary' and md.METRIC_COLUMN='maxavserv' and to_date(md.ROLLUP_TIMESTAMP,'DD.MM.YY') between '06.01.18' and '17.02.18,`

Metriken nach Konfigurationsänderungen nutzen



Lizensierung: Immer alle genutzten Views überprüfen!

- **Enterprise Manager Licensing Information User Manual**
<https://docs.oracle.com/cd/cloud-control-13.3/OEMLI/toc.htm>
- The following repository views are part of the **Diagnostics Pack** for Oracle Database:
Monitoring Views
 - MGMT\$ALERT_ANNOTATIONS
 - **MGMT\$ALERT_CURRENT**
 - MGMT\$ALERT_HISTORY
 - MGMT\$ALERT_NOTIF_LOG
 - MGMT\$AVAILABILITY_CURRENT
 - MGMT\$AVAILABILITY_HISTORY
 - MGMT\$BLACKOUT_HISTORY
 - MGMT\$BLACKOUTS
 - MGMT\$METRIC_COLLECTIONS
 - **MGMT\$METRIC_CURRENT**
 - **MGMT\$METRIC_DAILY**
 - MGMT\$METRIC_DETAILS
 - MGMT\$METRIC_HOURLY
 - MGMT\$TARGET_METRIC_COLLECTIONS
 - MGMT\$TARGET_METRIC_SETTINGS

Beispiel-Abfragen

Welche Datenbanken haben eine bestimmte Version ?

- ```
select mt.TARGET_NAME, mt.HOST_NAME, mtp.PROPERTY_VALUE as VERSION
from SYSMAN.MGMT_TARGETS mt , sysman.MGMT$TARGET_PROPERTIES mtp
where
mt.TARGET_GUID = mtp.TARGET_GUID and
mtp.PROPERTY_NAME = 'Version' and
mt.TARGET_TYPE = 'oracle_database' and
mtp.PROPERTY_VALUE like '12.%';
```

# Archivelog Destination überall gleich ?

```
select distinct mt.HOST_NAME, mc.target_name ,mt.target_type,
mc.COLLECTION_TIMESTAMP as Metric_Collection, mc.VALUE as ARCHIVELOG_DEST
from sysman.mgmt_targets mt, sysman.mgmt$metric_current mc
where
mt.TARGET_GUID=mc.TARGET_GUID and
mt.TARGET_TYPE='oracle_database' and
mc.METRIC_NAME='ME$LOG_ARCH_DEST_VALUE';
```

# Dynamisch aus dem Repo einen Connect-String bauen

```
select
' (DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=' || HOST_NAME || ') (PORT=1532))) (CONN
ECT_DATA=(SERVICE_NAME=' || lower(TARGET_NAME) || ')))'
from sysman.MGMT_TARGETS
where TARGET_TYPE='oracle_database' and
lower(host_name) like '%test.de%' and
lower(target_name) not like 'PROD%'
union
select
' (DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=' || HOST_NAME || ') (PORT=1532))) (CONN
ECT_DATA=(SERVICE_NAME=' || lower(substr(TARGET_NAME, INSTR(TARGET_NAME, '_') +1)) || ')))'
from sysman.MGMT_TARGETS
where TARGET_TYPE ='oracle_pdb' and
lower(host_name) like '%test.de%' and
target_name not like '%CDBROOT';
```

# MS SQL Version, Host, HADR

```
select distinct sq.product, mssql.cm_target_name as HOST_NAME, NULL as GROUP_NAME
from SYSMAN.CM$MGMT_EMX_MSSQL_DBSETTING mssql, sysman.MGMT_EMX_MSSQL_SQLSERVER sq
where
mssql.ECM_SNAPSHOT_ID = sq.ECM_SNAPSHOT_ID and
mssql.cm_target_type='microsoft_sqlserver_database' and
sq.HADR_ENABLED='False'
```

union

```
select distinct sq.product, mssql.cm_target_name as HOST_NAME, ha.GROUP_NAME
from SYSMAN.CM$MGMT_EMX_MSSQL_DBSETTING mssql, sysman.MGMT_EMX_MSSQL_SQLSERVER sq,
sysman.MGMT_EMX_MSSQL_HADR_DBS ha
where
mssql.ECM_SNAPSHOT_ID = sq.ECM_SNAPSHOT_ID and
mssql.ECM_SNAPSHOT_ID = ha.ECM_SNAPSHOT_ID and
lower(mssql.settingid) = lower(ha.DB_NAME) and
mssql.cm_target_type='microsoft_sqlserver_database' and
sq.HADR_ENABLED='True';
```

# User Defined Metrics für DBA-Dashboards nutzen

```
select a.TARGET_NAME, a.COLLECTION_TIMESTAMP as ERROR_TIME, m.COLLECTION_TIMESTAMP as
LAST_TIME, a.ALERT_STATE , a.CURRENT_VALUE
from sysman.MGMT$ALERT_CURRENT a, sysman.MGMT$METRIC_CURRENT m
where
a.TARGET_GUID=m.TARGET_GUID and
a.METRIC_GUID=m.METRIC_GUID and
a.METRIC_NAME='ME$ZMON_CHECK';
```

| TARGET_NAME                          | ERROR_TIME     | LAST_TIME      | ALERT_STATE | CURRENT_VALUE             |
|--------------------------------------|----------------|----------------|-------------|---------------------------|
| HOST1.test.de<br>als 120 min inaktiv | 25.01.18 13:51 | 26.01.18 13:21 | Critical    | [Error] 1 ZMON/S DB1 mehr |
| HOST2.test.de<br>als 120 min inaktiv | 24.01.18 11:15 | 26.01.18 13:30 | Critical    | [Error] 1 ZMON/S DB2 mehr |
| HOST3.test.de<br>als 120 min inaktiv | 20.01.18 01:31 | 26.01.18 13:16 | Critical    | [Error] 1 ZMON/S DB3 mehr |

# Letzte Sicherung von MS SQL Datenbanken

alle MSSQL Server mit Backups zeigen das Backup-Datum, die Felder von anderem Datentyp haben ein NULL  
=> Zeilen ohne Datum zeigen einen nicht gesicherten Server

```
select distinct mc.target_name,
max((case
when mc.VALUE like '%/%' then to_date(mc.VALUE, 'MM/DD/YY')
else NULL
end)) LAST_BACKUP
from sysman.mgmt$metric_current mc
where
mc.TARGET_TYPE='microsoft_sqlserver_database' and
mc.METRIC_NAME='MSSQL_LastDatabaseBackup'
group by mc.target_name, mc.COLLECTION_TIMESTAMP;
```

| TARGET_NAME            | METRIC_COLLECTION | BACKED_UP   |                |
|------------------------|-------------------|-------------|----------------|
| test01.mssql.HAG_MSSQL | 19.11.17 18:44    | 11/18/2017  |                |
| test01.mssql.HAG_MSSQL | 19.11.17 18:44    | <b>D</b>    | <= Full Backup |
| test01.mssql.HAG_MSSQL | 19.11.17 18:44    | <b>L</b>    | <= Log Backup  |
| test01.mssql.HAG_MSSQL | 19.11.17 18:44    | <b>TRUE</b> |                |



# MS SQL: Allokierter und genutzter Plattenplatz

```
with
 ms_alloc as (select mc.target_name ,mc.key_value, mc.VALUE as MB_alloc
from sysman.mgmt$metric_current mc
where mc.TARGET_TYPE='microsoft_sqlserver_database' and mc.METRIC_NAME='SpaceUsage' and
mc.METRIC_COLUMN='database_size_mb' order by 1),
 ms_used as (select mc.TARGET_NAME,mc.key_value, (msa.MB_alloc - mc.VALUE) as MB_used
from sysman.mgmt$metric_current mc , ms_alloc msa
where msa.key_value=mc.key_value and msa.target_name=mc.target_name and
mc.TARGET_TYPE='microsoft_sqlserver_database' and mc.METRIC_NAME='SpaceUsage' and
mc.METRIC_COLUMN='unalloc_space_mb' order by 1)

select distinct lower(mssql.settingid) as TARGET_NAME, mssql.cm_target_name as HOST_NAME, mssql.cm_target_type,
mt.category_prop_2 as VERSION, msa.MB_alloc/1024 as allocated_GB, msu.MB_used/1024 as used_GB,
trunc(mssql.last_collection_timestamp) as Coll_Timestamp
from SYSMAN.CM$MGMT_EMX_MSSQL_DBSETTING mssql, SYSMAN.MGMT_TARGETS mt , ms_alloc msa , ms_used msu
where mssql.cm_target_guid = mt.target_guid and msu.key_value=mc.key_value and
msu.target_name=mc.target_name and msa.key_value=mc.key_value and
msa.target_name=mc.target_name and msu.key_value=msa.key_value and
msu.target_name=msa.target_name and
trim(mssql.settingid) not in ('tempdb','reportservertempdb','reportserver','msdb','model','master')
-- and lower(mssql.settingid) like '%crm%'
;
```

- geht auch für Oracle DBs & PDBs, IBM-DB2 und Sybase

**Vielen Dank**

## **Kontakt**

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