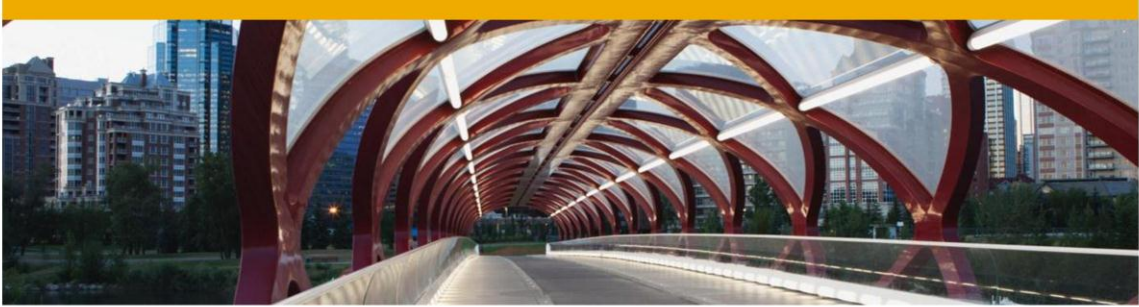


# SAP® MaxDB™ Expert Session

SAP® MaxDB™ & SAP® Content Server - ODBC  
March, 18, 2013

Public

The SAP logo is located in the bottom left corner of the slide. It consists of the letters 'SAP' in a white, sans-serif font, set against a blue rectangular background.



# SAP® MaxDB™ Expert Session

SAP® MaxDB™ Content Server – ODBC

Oksana Alekseious, Senior Developer  
Heike Gursch, Senior Developer

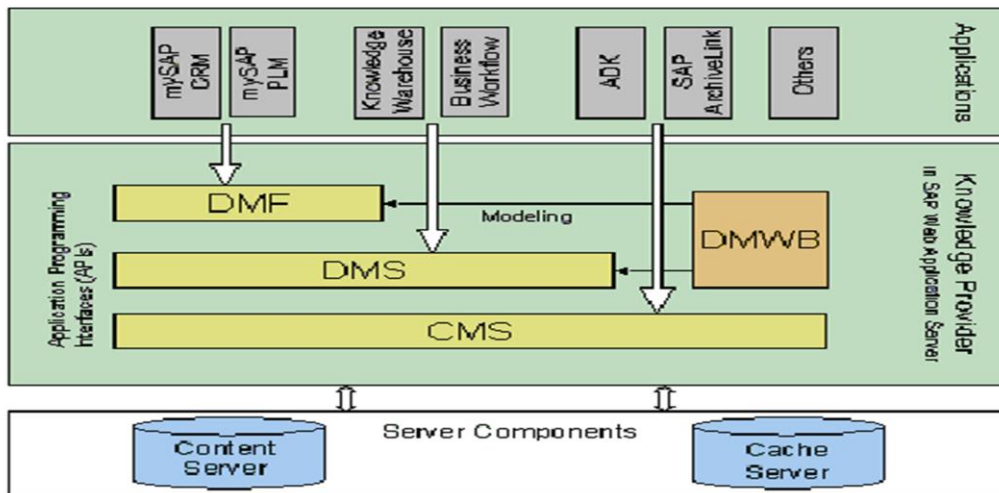


# Agenda

1. SAP Content Server Interfaces
2. SAP MaxDB ODBC Driver on Windows
3. SAP MaxDB ODBC Driver on UNIX/Linux
4. Case Studies
5. Additional Information



# SAP Knowledge Provider Overall Architecture



Knowledge Provider is the central service in SAP Basis for administrating and storing any kind of documents.

- KPro provides different services, for example storage systems (SAP MaxDB or file storage system), search engines and retrieval engines
- Many SAP Applications as for example CRM or Knowledge Warehouse are using Kpro services
- Different interfaces are used for different services, for example SAP Content Server HTTP Interface for storage system, Index Management Service (IMS) Interface for search and retrieval engines
- KPro is application independent

There are listed three KPro services:  
 Document Management Framework (DMF)  
 Document Management Service (DMS)  
 Content Management Service (CMS).

The Content Management Service functions are an interface between content servers and the SAP system for adding, handling and deleting all kind of documents.

# SAP Content Server

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- The SAP Content Server is based on the database instance MaxDB and is available starting with Release 4.6. Therefore, beside the SAP database, an external content server is always available in every SAP system installation.
- The basis of the Content Server is the Content Server Engine. The engine receives all URLs, checks their validity, and triggers the processing of requests.
- Data is saved in the database instance. The Content Server Engine uses an adapter known as the content storage layer for the communication with the database instance.
- The storage layer uses the MaxDB ODBC driver to access the database instance. The database administrates the individual repository tables in which the documents are stored.

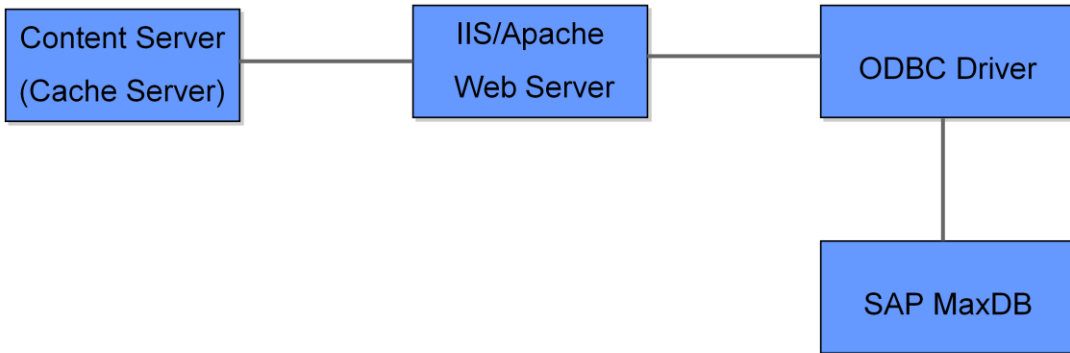
The CMS functions are also used by the Content Server Engine.

The MaxDB software is delivered with every Content Server installation as of SAP Content Server Version 4.6. The Content Server configuration file ContentServer.INI or cs.conf is located in the content server installation directory. The content of this file is described in SAP note 329473 "Description of the file ContentServer.INI"

The database components are supported by SAP MaxDB team.

## Communication Ways within SAP Content Server

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The Content Server sends the URL query firstly to the WebServer. It is IIS (Internet Information Services) web server on Windows operation system or Apache HTTP Server on Linux/UNIX. From the web server the query goes to the MaxDB ODBC (Open Database Connectivity) driver which opens connections to the MaxDB database, sends SQL statements, gets their results and transfers it back to the Content Server application.

If problems arise in the Content Server environment and their origin remains unknown special traces can be activated and analyzed on every step within this communication chain.

## Traces in the Content Server Environment

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- The communication with the Content Server application is logged in the SAPHTTP trace. The trace activation is described in SAP note: **164203 - Problems with SAPHTTP**
- The Content Server activity can be caught in the server trace by setting the configuration parameter FullTrace=1 in the ContentServer.INI. The detailed process is described in SAP note: **761387 - Support information for the SAP Content Server**
- The activation and usage of the web server tracing is described in the official IIS or Apache documentation.  
for IIS: <http://www.iis.net/configreference/system.webserver/tracing>  
for Apache: <https://httpd.apache.org/dev/debugging.html>
- For producing an ODBC trace the CS configuration parameter or the ODBC MaxDB tools are used. Their choice depends on the OS system of the database server and the ODBC driver version. All possibilities are discussed in our expert session.

## ContentServer.INI (I)

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- describes the setting up of the repositories that can be addressed by the content server
- usually kept up-to-date automatically by the content server, therefore, manual editing is not required
- transaction CSADMIN is used for the maintenance and administration of the content server
- located in the content server installation directory
- The file is organized into several sections. In each of these sections, parameter value pairs are defined that are valid within this section.

- Two sections:

[ContentServer]

The content server section contains all of the parameters that are generally valid and that influence the runtime of the server.

[contRep-<RepositoryName>]

The contRep section defines a content repository. That is, this section contains all of the parameters that describe the access to the database repository.

The Content Server configuration file name is ContentServer.INI on Windows and cs.conf on Linux/UNIX. The content of the file is independent of the operation system.



## ContentServer.INI (II)

---

Relevant parameters for the section [contRep-<RepositoryName>]

Name: **sqltrace**

Type: Boolean

Default: 0

Values: 0, 1

Mandatory: no

This trace is to be activated only for diagnosis purposes and is to be deactivated in a production system.

Name: **driver**

Type: Character

Default: LiveCache

Values: **ODBC driver name**

Mandatory: no

Description: Driver contains the ODBC driver name required for the database access. Only the ODBC drivers of the SAP database are released for production operation.

On Windows the ODBC driver used by the Content Server should be registered on OS side under the same name as defined in the configuration file. If different ODBC drivers with different names or/and versions are registered on the database server and some problems arise please deregister all ODBC drivers except the one defined in the ContentServer.INI file.

## SAP MaxDB ODBC Driver

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ODBC (Open Database Connectivity) is a standard programming language middleware API for accessing database management systems.

- independent of database systems and operating systems
- Using an **ODBC driver** as a translation layer between the application and the DBMS

SAP MaxDB ODBC driver is the default interface between SAP Content Server and SAP MaxDB. It will be used in different ways on different OS systems. The SAP Content Server uses

- the ODBC driver delivered with the database installation on Windows
- the static link with mod\_sapcs.so library on UNIX which is included in SAP Content Server code

For nearly all aspects concerning the MaxDB ODBC driver the most important information is whether Content Server is running on Windows or UNIX/Linux.

This firstly should be taken into consideration when for example a problem situation with the Content Server or/and storage host should be analyzed.

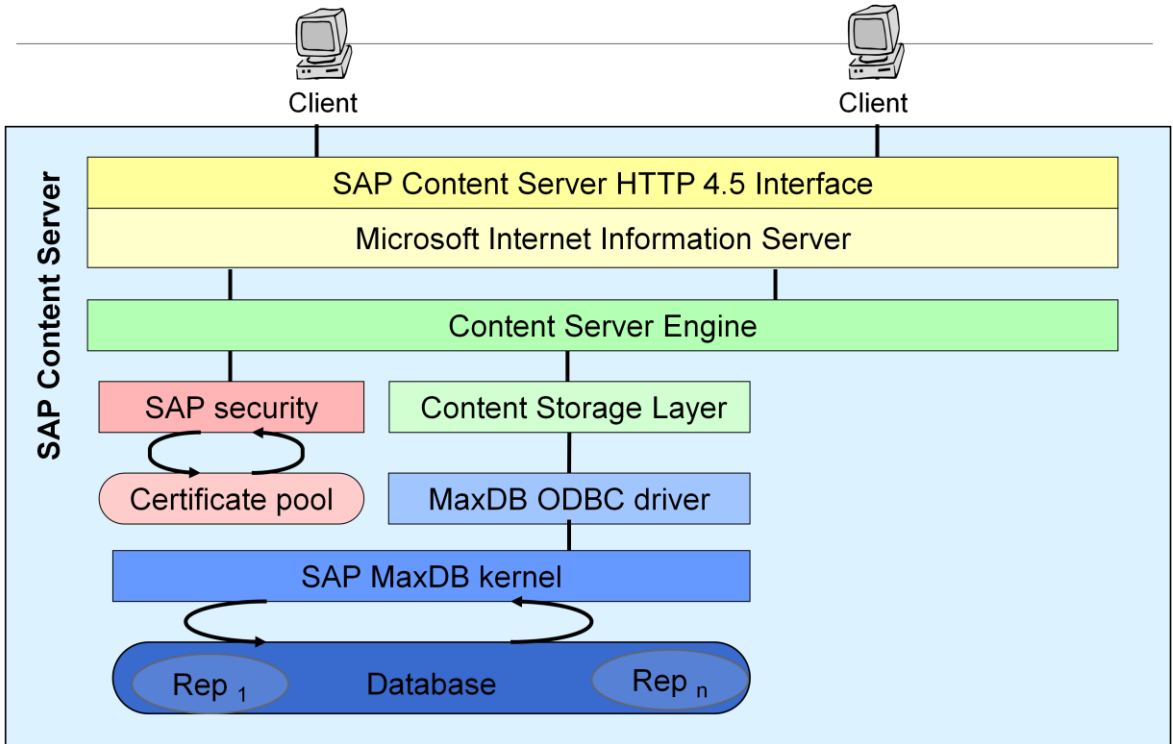
API – an application programming interface **ODBC API Reference**  
[http://msdn.microsoft.com/en-us/library/ms714562\(v=vs.85\).aspx](http://msdn.microsoft.com/en-us/library/ms714562(v=vs.85).aspx)

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# SAP Content Server Structure on Windows



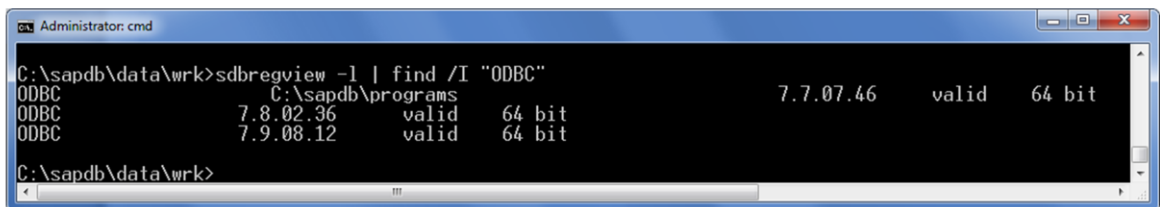
The usage of the SAP MaxDB database as storage host for the Content Server was initially developed for the use on Windows. The request for a document is sent as an URL with the SAPHTTP interface to the Content Server which transfers it to the Microsoft IIS Server. After passing the IIS Server the request reaches the ODBC driver which handles the information and delivers it to the MaxDB database kernel.

## ODBC Driver Versions on Windows

---

- The used ODBC driver version is defined by the MaxDB database software installed on the database server and the registered ODBC driver.
- On one database server several ODBC drivers can be registered under different names. They can have the same or different software versions.
- The installed and registered ODBC drivers can be listed with the following `sdbregview` command

```
sdbregview -l | find // "ODBC"
```



```
Administrator: cmd
C:\sapdb\data\wrk>sdbregview -l | find /I "ODBC"
ODBC                C:\sapdb\programs                7.7.07.46    valid    64 bit
ODBC                7.8.02.36    valid    64 bit
ODBC                7.9.08.12    valid    64 bit
C:\sapdb\data\wrk>
```

## ODBC Driver Update on Windows

---

- The ODBC driver on Windows can be updated every time independently of the MaxDB database update. The update steps are described in the SAP note  
**698915 - Importing an SAP MaxDB ODBC driver**
- If the Content Server is installed on Windows 8 and the version of the MaxDB database and/or the ODBC driver is 7.6 both must be at least 7.6.5.12 as requested in the SAP note  
**1399009 - Content Server 6.40 on Windows Server 2008 and Win2008 R2**
- If the MaxDB database and/or the ODBC driver of the versions 7.7 and 7.8 are installed in content server system at least MaxDB Versions 7.7.07.32 and 7.8.02.22 should be used. Detailed information concerning this requirement can be found in SAP note  
**1571193 - Using MaxDB Versions 7.7 & 7.8 in the content server system**

# ODBC Driver Name in CSADMIN

The screenshot displays the 'Content Server Administration - Change' interface. At the top, there are input fields for 'HTTP server' (dewdfgwp00213), 'Port Number' (1090), 'HTTP Script' (ContentServer/ContentServer.dll), and 'Version' (0046). Below these are tabs for 'Overview', 'Details', 'Certificates', 'Settings', 'Statistics', and 'Create'. The 'Settings' tab is active, showing a 'Content Rep.' dropdown set to 'ZTEST5'. A table titled 'Repository Settings' is visible, listing various parameters and their values.

Name	Conts.
ContentStorageHost	localhost
ContentStorageName	CS
Storage	ContentStorage.dll
driver	MaxDB76
Security	1
SQLTrace	1
ContRepDescription	Test

In the administration transaction CSADMIN the repository setting tab shows the name of the database server, the name of the Content Server database, the name of the used ODBC driver on the database server and another settings.

The installed ODBC driver should be registered under the same name as defined in the Content Server configuration file ContentServer.INI to avoid communication problems.

## ODBC Driver Registration on Windows

- For ODBC driver registration the odbcreg tool from the directory <installation\_path>/pgm should be used. The installation path can be determined with the command:  
xinstinfo <DB\_name>

```
C:\Users\sdbadm>xinstinfo SDB
IndepData      : C:\sapdb\data
IndepPrograms  : C:\sapdb\programs
InstallationPath : C:\sapdb\SDB\db
```

- Already existing ODBC drivers are listed with the command: odbcreg -g

```
C:\sapdb\SDB\db\pgm>odbcreg -g
List of installed drivers
1.  SQL Server;  %WINDIR%\system32\SQLSRV32.dll
2.  SAP MaxDB SDB (Unicode);  C:\sapdb\SDB\db\pgm\sdbodbcw.dll
3.  SAP MaxDB SDB;  C:\sapdb\SDB\db\pgm\sdbodbc.dll
```

- After the change in the odbcreg directory the following command is used for the registration:  
odbcreg <ODBC-driver-name> -i -p <path\_to\_driver> -d <name\_of\_odbc\_lib>

```
C:\sapdb\SDB\db\pgm>odbcreg liveCache -i -p C:\sapdb\SDB\db\pgm\ -d sdbodbcw.dll
```

If you are facing problems in the Content Server environment it makes sense to register only one ODBC driver which should be used by the Content Server and another application and delete multiple driver registration.

The needed ODBC driver name should be looked up in the CSADMIN transaction. The path to the ODBC driver location is usually the same in which the tool odbcreg is located (<installation\_path>/pgm). In database versions 7.3 - 7.6 the names of the ODBC libraries were sqlod32.dll and sqlod32w.dll (Unicode) and in later versions sdbodbcw.dll.

More detailed information on how to register the MaxDB ODBC driver can be looked up in SAP note **1764842 - Connection problem to SAP Content Server**

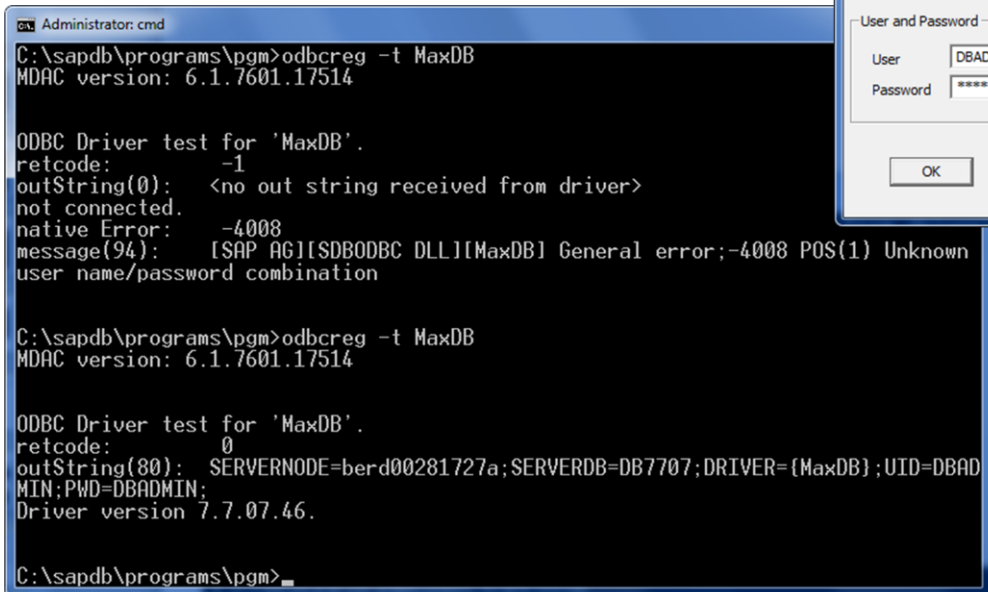
odbcreg can deliver special information about every already registered ODBC driver. Use the command: odbcreg <ODBC-driver-name>

```
C:\sapdb\SDB\db\pgm>odbcreg "SAP MaxDB SDB"
DriverName=SAP MaxDB SDB
Driver=C:\sapdb\SDB\db\pgm\sdbodbc.dll
Setup=C:\sapdb\SDB\db\pgm\sqlsp32.dll
Version=7.9.0.0
```



# Testing the ODBC Connection

Test if the ODBC driver can connect to the database:



After typing the command `odbcreg -t <driver_name>` the shown pop up windows appears.

The needed information for the ODBC connect test is:

- 1)server name where the MaxDB database with the needed repository is located
- 2)MaxDB database name which contains the Content Server repository to which the connection is tested
- 3)the database user name with which the Content Server connects to the MaxDB database. Usually it is user SAP<SID>
- 4)the password of the database user specified above

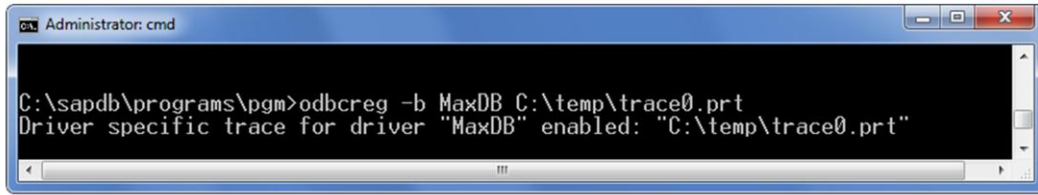
## ODBC Driver Tools on Windows

---

- For producing an ODBC trace on Windows the ODBC MaxDB tools are used. Their choice depends on the ODBC driver version.
- For MaxDB versions < 7.7 the general tool odbcreg is used also for producing the ODBC trace. The IIS web server should be restarted after turning on and off the ODBC trace. It should be taken into consideration that the Content Server will not work during the restart time and already running requests will be interrupted because of the lost connection.
- Starting with MaxDB version 7.7 the new ODBC tool odbc\_cons is developed with much more detailed and better tracing functions. Because of the improved tracing ability the ODBC/client update to the higher MaxDB version is often inevitable in case of errors when the ODBC trace is needed for further analysis.

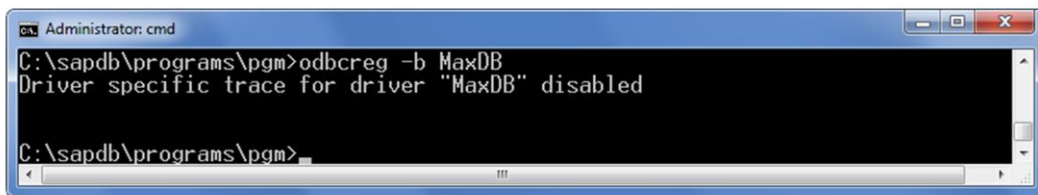
## ODBC Trace for MaxDB versions < 7.7

- Activate the ODBC trace with the command: `odbcreg -b <driver_name> <trace_file>`



```
Administrator: cmd
C:\sapdb\programs\pgm>odbcreg -b MaxDB C:\temp\trace0.prt
Driver specific trace for driver "MaxDB" enabled: "C:\temp\trace0.prt"
```

- Restart the IIS web server:  
`net stop IIS`  
`net start IIS`
- Start the action in Content Server and check the trace
- Stop the trace with the command: `odbcreg -b <driver_name>`

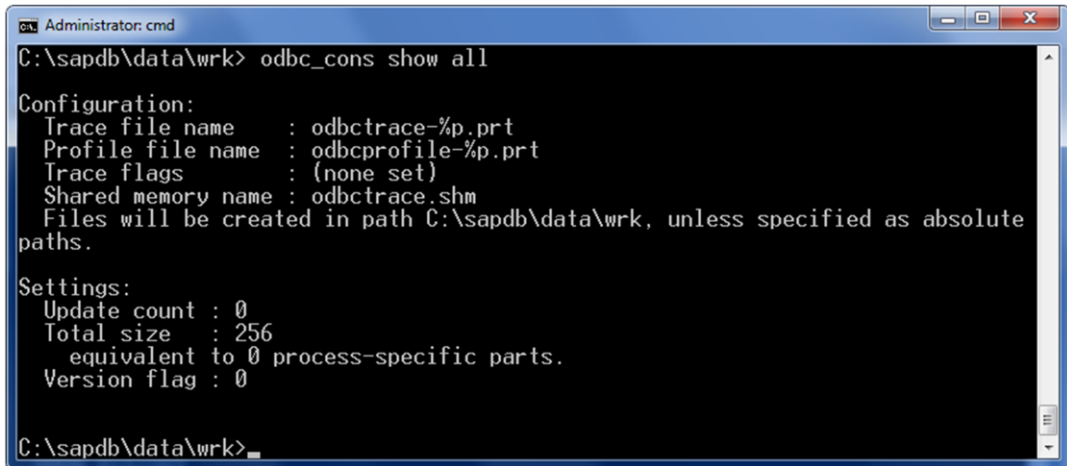


```
Administrator: cmd
C:\sapdb\programs\pgm>odbcreg -b MaxDB
Driver specific trace for driver "MaxDB" disabled

C:\sapdb\programs\pgm>
```

After disabling the ODBC trace the IIS web server should be restarted again to make sure that the Content Server and the web server will notice the stop of tracing.

## ODBC Trace for MaxDB versions >= 7.7 (I)



```
Administrator: cmd
C:\sapdb\data\wrk> odbc_cons show all

Configuration:
Trace file name      : odbctrace-%p.prt
Profile file name   : odbcprofile-%p.prt
Trace flags         : (none set)
Shared memory name  : odbctrace.shm
Files will be created in path C:\sapdb\data\wrk, unless specified as absolute
paths.

Settings:
Update count       : 0
Total size         : 256
                   equivalent to 0 process-specific parts.
Version flag       : 0

C:\sapdb\data\wrk>
```

- Check if there is enough space for trace files in the specified directory.
- If there are already old odbc trace files save it.

The “show all” command of the `odbc_cons` tool shows the tracing configuration and the current trace options if the ODBC trace is turned on. The first step is to check whether the ODBC trace is active at all. If no, as above, we only see the configuration options. If the tracing is enabled we see which ODBC trace options are activated. In either case we need to know to which directory the ODBC trace will be written. The example output of the command below shows that the ODBC trace is activated.

```
C:\sapdb\data\wrk>odbc_cons show all
```

```
Configuration:
Trace file name      : 'odbctrace.prt'
Profile file name   : 'odbcprofile.prt'
Trace flags         : A:d:a
ODBC trace          : enabled
Short trace         : disabled
Long trace          : disabled
Profile trace       : enable
SQL trace           : enabled
Time stamp prefix   : disabled
Packet trace        : disabled
Trace file size     : not limited
Stop on error       : disabled.
Shared memory name  : odbctrace.shm
```

Files will be created in path C:\ProgramData\sdb\data\wrk, unless specified as absolute paths.

```
Settings:
Update count       : 68
Total size         : 256
                   equivalent to 0 process-specific parts.
Version flag       : 0
Forced re-read of global configuration with last update.
```

## ODBC Trace for MaxDB versions >= 7.7 (II)

---

- If the tracing is enabled we see which the ODBC trace options are activated as in the command output below.

```
C:\sapdb\data\wrk>odbc_cons show all
```

```
Configuration:
```

```
Trace file name   : 'odbctrace.prt'
```

```
Profile file name : 'odbcprofile.prt'
```

```
Trace flags      : A:d:a
```

```
  ODBC trace     : enabled
```

```
  Short trace    : disabled
```

```
  Long trace     : disabled
```

```
  Profile trace  : enable
```

```
  SQL trace     : enabled
```

```
  Time stamp prefix : disabled
```

```
  Packet trace   : disabled
```

```
  Trace file size : not limited
```

```
  Stop on error  : disabled.
```

```
Shared memory name : odbctrace.shm
```

```
Files will be created in path C:\ProgramData\sdb\data\wrk, unless specified as absolute paths.
```

```
...
```

## ODBC Trace for MaxDB versions >= 7.7 (III)

---

- If the directory where the trace will be written has not enough space for the tracing file you should determine another location before the tracing is started with the command  
`odbc_cons config trace filename '\<path>\odbctrace-%p.prt'`
- If the MaxDB support request you to activate the ODBC trace with the LONG and/or PACKET options the trace size should be enlarged with the command  
`odbc_cons config trace size <new_size in bytes>`  
for example for 2MB trace: `odbc_cons config trace size 2097152`
- Activate the ODBC trace with the default options SQL and API  
`odbc_cons -u "NT AUTHORITY\SYSTEM" trace sql on`  
`odbc_cons -u "NT AUTHORITY\SYSTEM" trace api on`
- Start the action in Content Server and check the trace
- Stop the trace at once for ALL options with the command  
`odbc_cons -u "NT AUTHORITY\SYSTEM" trace off`

For Microsoft Windows systems, extend all of the tracing commands with system user authorization -u "NT AUTHORITY\SYSTEM" as shown in examples. The commands for changing the tracing configuration can be run without the user authorization.

## ODBC Trace for MaxDB versions $\geq 7.7$ (IV)

---

- In special cases the feature STOP ON ERROR is needed. Following command determines that the tracing stops after the error `<error>` has happened `<number>` times. If the clause COUNT is missed the default is the single occurrence  
`odbc_cons -u "NT AUTHORITY\SYSTEM" trace stop on error <error> [count <number>]`
- This option can be turned off without the turning off the ODBC tracing in general with the command:  
`odbc_cons -u "NT AUTHORITY\SYSTEM" trace stop on error off`
- The time stamp for each logged action can be activated/deactivated with the command:  
`odbc_cons -u "NT AUTHORITY\SYSTEM" trace timestamp on/off`
- The short `odbc_cons` options documentation can be called with the help function  
`odbc_cons -h`

## ODBC Trace for MaxDB versions >= 7.7 (V)

```
<html><head><meta http-equiv="Content-Type" content="text/html; charset=utf-8"></head><body><PRE><PLAINTEXT>SQLDBC 7.8.1  
BUILD 014-121-233-288 Apr 23 2010 18:17:03 System: Microsoft Windows / X64 (64-bit)
```

- SQLDriverConnect 2011-04-12 12:26:57.879000  
ConnectionHandle [in] : 000000001F40651  
WindowHandle [in] : (null)  
InConnectionStr [in] : DRIVER={SAP MaxDB SDB};  
>IFR\_Connection::connect  
p\_servermode(-3)='SRVCONTENT,  
p\_serverdb(-3)='SDB,  
p\_username(-3)='SAPR3,
- CONNECT 2011-03-30 18:45:01.158000 [0x000000000003A1A50]  
CONNECT COMMAND: 'CONNECT ? IDENTIFIED BY ? SQLMODE INTERNAL ISOLATION LEVEL 1'  
SESSION ID: 1  
CHOP TRAILING BLANKS ON INPUT DISABLED  
VARIABLE INPUT ENABLED  
SCROLLABLE CURSORS DISABLED  
INTERNAL FORMAT FOR DATE/TIME I/O ENABLED  
EXTENDED LOB LOCATOR FUNCTIONALITY ENABLED  
OK  
SET AUTOCOMMIT ON 2011-03-30 18:45:01.189000 [0x000000000003A1A50]
- SQLGetFunctions 2011-04-12 12:26:57.879000  
ConnectionHandle [in] : 000000001F40651  
FunctionId [in] : SQL\_API\_ODBC3\_ALL\_FUNCTIONS  
SupportedPtr [out] : 65535SQL  
RETURN : SQL\_SUCCESS

The ODBC trace starts with the version of the used ODBC driver and operating system.

In the ODBC trace it is also shown the ODBC driver name with which the Content Server is connected to which database server and which database and under which user the connection is open.

The SQL commands are of course logged into the ODBC trace with various for connection needed options together with the ODBC and API functions. The big amount of information is as a rule analyzed by the MaxDB developer in the error case.

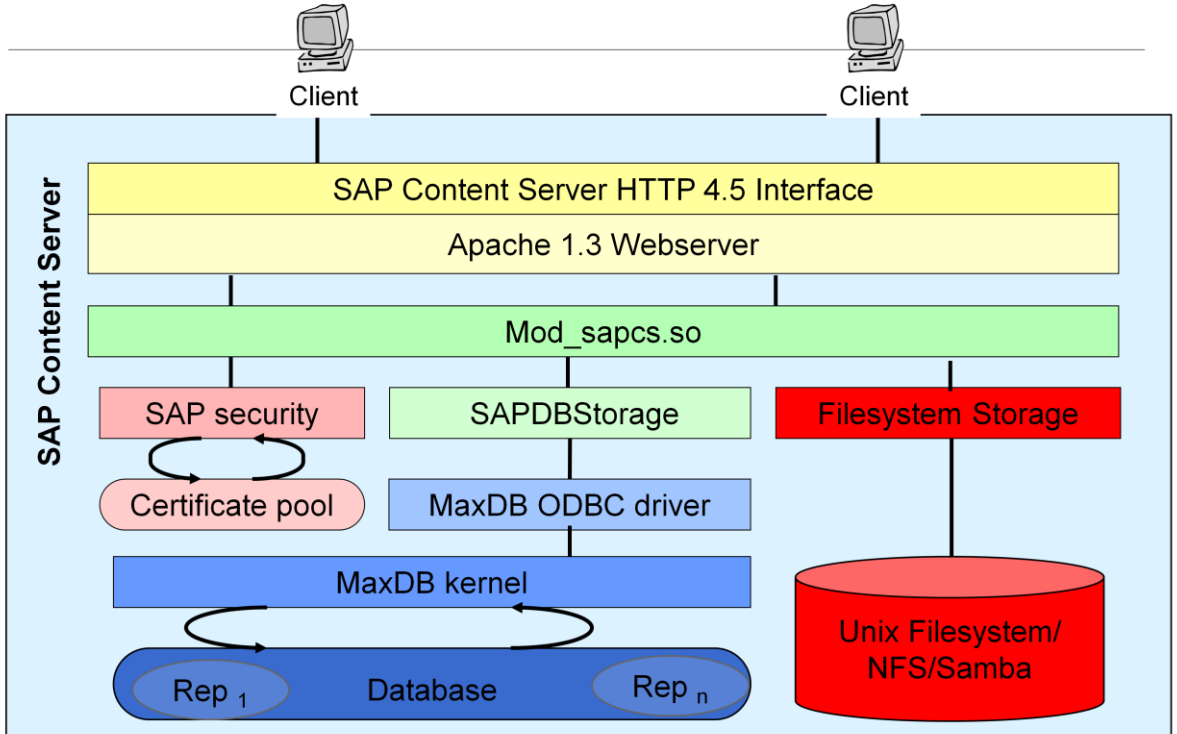


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# SAP Content Server Structure on UNIX



The usage of SAP MaxDB database as storage host for the Content Server was additionally developed for UNIX/Linux operating systems. The request for a document is sent as an URL with the SAPHTTP interface to the Content Server which transfers it to the Apache Webserver. After passing the Apache Webserver the request reaches the ODBC driver. The driver is statically linked in this case into the Content Server software as shared library which handles the information and delivers it to the MaxDB database kernel.

## ODBC Driver on UNIX/Linux

---

- The used ODBC driver version is defined by the Content Server software installed on the database server.
- For producing an ODBC trace the parameter `Sqltrace=1` has to be set in the Content Server configuration file `cs.conf`. The parameter `Sqltrace` in section `[contRep-<RepositoryName>]` should be set to 1 by using the transaction CSADMIN.

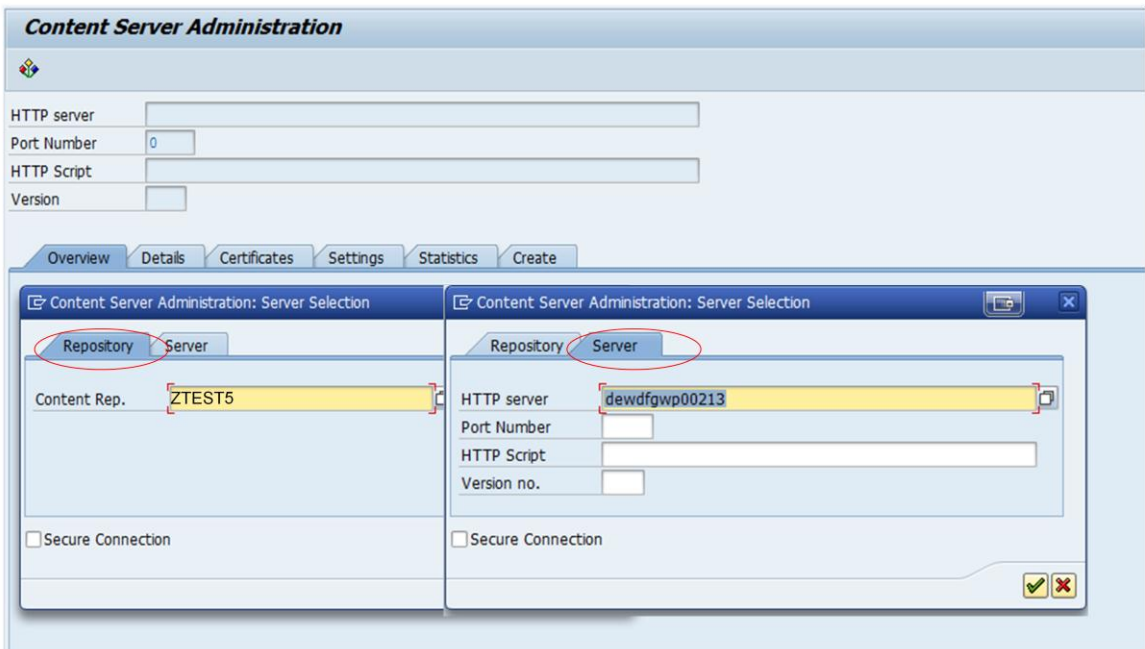
```
[contRep-ZTEST5]
sqltrace=1
ContentStorageHost=localhost
ContentStorageName=SDB
Security=1
ContRepDescription=Test
driver=liveCache
```

It is important to keep in mind that on UNIX/Linux the ODBC driver is part of the Content Server installation as a statically linked shared library. That's why it can't be changed or used with the database tools and/or database installation. The database update will NOT change the used ODBC version. Only new Content Server software with a new statically linked library can contain another ODBC version in this case.

The Content Server configuration file is **cs.conf** on UNIX/Linux. It describes the setting up of the repositories that can be addressed by the content server. The configuration file **MUST** be located in the content server installation directory.

The file is usually kept up-to-date automatically by the content server, therefore, manual editing is **not** required. Transaction CSADMIN exists for maintenance and administration of the content server.

# Transaction CSADMIN



The correct way to activate the ODBC trace is to change the configuration file using the transaction CSADMIN. By calling the administration transaction CSADMIN the concrete content repository from the list of all existing repositories in this Content Server or the server which contains a needed repository in the database should be chosen.

The transaction CSADMIN doesn't contain any information about the SAP MaxDB database which can contain the concerned repository.

# CSADMIN Repository Settings

**Content Server Administration - Change**

HTTP server: dewdfgwp00213  
Port Number: 1090  
HTTP Script: ContentServer/ContentServer.dll  
Version: 0046

Overview | Details | Certificates | **Settings** | Statistics | Create

Content Rep.: ZTEST5

Name	Conts.
ContentStorageHost	localhost
ContentStorageName	CS
Storage	ContentStorage.dll
driver	MaxDB76
Security	1
SQLTrace	1
ContRepDescription	Test

The repository setting shows the name of the database server, the name of the Content Server database, the name of the used ODBC driver on the database server and other settings.

In the Settings tab the ODBC trace should be activated with the option SQLTrace=1 for the Content Server on UNIX/Linux servers.

## Database Tools Usage

---

- The MaxDB installation contains all database tools also on Linux/UNIX including the ODBC related tools. They can be called and used.
- But they are useless in the Content Server environment. The usage of the statically linked library will not be caught if the ODBC trace is turned on with the known database tools.
- The ODBC version used by the Content Server is logged in the ODBC trace which is activated through the change of the Content Server configuration parameter Sqltrace through the transaction CSADMIN

```
<html><head><meta http-equiv="Content-Type" content="text/html; charset=utf-8"></head><body><PRE>
<PLAINTEXT>
PRODUCT : MaxDB C-PreComp Runtime
VERSION : 7.6.06
BUILD   : 026-123-248-401
```

The excerpt from the ODBC trace

S3:MASS STATEMENT :

FETCH "SQL\_CURSOR\_0013"

EXECUTE: CMD :

PARSEID: INPUT : 00003408 00000D01 2A002B00 16000000

PARAMETER DESCRIPTION: 0X02EE3FE8

Application	Kernel				
Nr.	Type	Length	Type	Length	Fraction
1	7	13	0	10	0
2	7	13	0	10	0
3	7	13	0	10	0
4	7	13	0	10	0
OUTPUT :	1: USEDPERM		:		193851
OUTPUT :	2: UNUSED		:		318135
OUTPUT :	3: USEDLOG		:		40390
OUTPUT :	4: LOGSIZE		:		255736

SQLERRD(INDEX\_3) : 1

START : DATE : 2013-09-04 TIME : 0014:42:42

END : DATE : 2013-09-04 TIME : 0014:42:42

S3:CLOSE "SQL\_CURSOR\_0013"

PARSE : CMD :

PARSEID: OUTPUT: 00003408 00000E01 06002800 16000000

START : DATE : 2013-09-04 TIME : 0014:42:42

END : DATE : 2013-09-04 TIME : 0014:42:42

S3:CLOSE "SQL\_CURSOR\_0013"

EXECUTE: CMD :

PARSEID: INPUT : 00003408 00000E01 06002800 16000000

PARSEID: SELECT: 00003408 00000B02 54002C00 16000000

mflIndex init : 2

mflIndex restore : 2

START : DATE : 2013-09-04 TIME : 0014:42:42

END : DATE : 2013-09-04 TIME : 0014:42:42

# Database Tools Usage

- The MaxDB installation contains all database tools also on Linux/UNIX including the ODBC related tools. They can be called and used.
- But they are useless in the Content Server environment. The usage of the statically linked library will not be caught if the ODBC trace is turned on with the known database tools.
- The ODBC version used by the Content Server is logged in the ODBC trace which is activated through the change of the Content Server configuration parameter Sqltrace through the transaction CSADMIN

```
<html><head><meta http-equiv="Content-Type" content="text/html; charset=utf-8"></head><body><PRE>
<PLAINTEXT>
PRODUCT : MaxDB C-PreComp Runtime
VERSION : 7.6.06
BUILD   : 026-123-248-401
```

## The excerpt from the ODBC trace

```
S3:SELECT USEDPERM, UNUSED, USEDLOG, LOGSIZE FROM SERVERDBSTATISTICS
EXECUTE: CMD :
PARSEID: INPUT : 00003408 00000B02 54002C00 16000000
mfIndex init : 2
mfIndex init : 2
WARNING: W-----8-----
SQLRESULTNAME : SQL_CURSOR_0013
SQLERRD(INDEX_3) : 1
START : DATE : 2013-09-04 TIME : 0014:42:42
END : DATE : 2013-09-04 TIME : 0014:42:42

S3:MASS STATEMENT :
FETCH "SQL_CURSOR_0013"
PARSE : CMD :
WARNING: W-3-----
PARSEID: OUTPUT: 00003408 00000D01 2A002B00 16000000
START : DATE : 2013-09-04 TIME : 0014:42:42
END : DATE : 2013-09-04 TIME : 0014:42:42

S3:MASS STATEMENT :
FETCH "SQL_CURSOR_0013"
EXECUTE: CMD :
PARSEID: INPUT : 00003408 00000D01 2A002B00 16000000
PARAMETER DESCRIPTION: 0X02EE3FE8
Application Kernel
Nr. Type Length Type Length Fraction
-----
1 7 13 0 10 0
2 7 13 0 10 0
3 7 13 0 10 0
4 7 13 0 10 0
OUTPUT: 1: USEDPERM : 193851
OUTPUT: 2: UNUSED : 318135
OUTPUT: 3: USEDLOG : 40390
OUTPUT: 4: LOGSIZE : 255736
SQLERRD(INDEX_3) : 1
START : DATE : 2013-09-04 TIME : 0014:42:42
END : DATE : 2013-09-04 TIME : 0014:42:42

S3:CLOSE "SQL_CURSOR_0013"
PARSE : CMD :
PARSEID: OUTPUT: 00003408 00000E01 06002800 16000000
START : DATE : 2013-09-04 TIME : 0014:42:42
END : DATE : 2013-09-04 TIME : 0014:42:42
```



# Agenda

1. SAP Content Server Interfaces
2. SAP MaxDB ODBC Driver on Windows
3. SAP MaxDB ODBC Driver on UNIX/Linux
4. Case Studies
5. Additional Information



# Connect Problem (I)

## Problem description:

Error in HTTP Access: IF\_HTTP\_CLIENT->RECEIVICM\_HTTP\_TIMEOUT. If CDB is used as ContentStorageName all is correctly working but not with QDB. CDB and QDB are both MAXDB database on the same server.

## Proposed actions:

Enable server trace, reproduce the issue and provide 'cs\_trace.txt'

Parameter: FullTrace=1  
File: cs\_trace.txt

## Error in related CS\_Trace:

ContentServer\_1091.ini -> is pointing to QDB

'CS\_Trace\_1091.txt' log

```
2013-06-26/10:37:13 [2652] CreateTab ContentStorage, connect error
SQLConnect failed, [SAP AG][SDBODBC DLL][MaxDB] General error;-4008
POS(1) Unknown user name/password combination, Error Code: -4008
```

The content server is usually operated as a black box. Very often a very simple problem causes effects and error messages on different levels. With the help of the traces you can easily find out what is the cause of a connect problem.

It is a very common error that the database does not accept the given user/password combination. On the next slide you find some simple tests how to find out if the database user on content server exists and if you can successfully login with that user.

## Connect Problem (II)

---

### Further questions:

- Is default "SAPR3" user and its password "SAP" configured?
- Check if the database user SAPR3 which is used by content server could connect to the database.
- Connect to the database server on operating system level:

```
Start a dbmcli session with:  
dbmcli -d <SID> -u control,<password>
```

- Connect to the database on dbmcli session by using the database user SAPR3:

```
sql_connect SAPR3,<password>
```

### Solution:

User SAPR3 did not exist on QDB.

```
CREATE USER SAPR3 PASSWORD SAP DBA NOT EXCLUSIVE
```

## Problem after Upgrade (I)

---

### Problem description:

After content server and MaxDB upgrade files with long URL cannot be read or created.

MaxDB version 7.8.2.35

Content server version 640 patch 17

### Error in CS\_trace.txt

```
[SAP AG][SDBODBC DLL][MaxDB] General error;-10401  
Conversion of parameter/column (1) would truncate data ;  
ODBC State S1000; Error Code -10401
```

### Actions:

```
odbc_cons -u "NT AUTHORITY\SYSTEM" trace sql on  
odbc_cons -u "NT AUTHORITY\SYSTEM" trace api on
```

Problems on content server often have to be handled with interdisciplinary skills. It is not unusual that there is a see-saw between the MaxDB component BC-DB-SDB and content server component BC-SRV-KPR-CS.

It was also necessary for the shown exemplary problem that the analysis took place on both components.

It is not required to understand each single step during the analysis but you get an impression how problems are handled in development to find out what is going wrong.

## Problem after Upgrade (II) – Excerpt from ODBC trace

```
::PARSE 'SQLCURS_4' 2013-07-18 18:38:33.469000 [0x0000000003EAA470]
SQL COMMAND:'SELECT LVALUE, SHORT_VALUE, LONG_VALUE, COMPRESSED FROM C
PARSE ID: 0001738F 00001001 54002C00 [1]

PARAMETERS:
I T      L P POS I IO N
1 VARCHAR ASCII 254 0   -255 IN  "

COLUMNS:
I T      L P I N
2 FIXED   10 0 1  SQLExecute 2013-07-18 18:38:33.484000
3 VARCHAR BYTE 3600 0 8 3601 'SHORT_VALUE'...
::EXECUTE 'SQLCURS_4' 2013-07-18 18:38:33.484000 [0x0000000003EAA470]
5 CHAR ASCII  1  0 36PARSE ID: 0001738F 00001001 54002C00 [1]
...
I T      AT L      I      DATA

SQL ERROR :
*****
CODE      : -10401
MESSAGE   : Conversion of parameter/column (1) would truncate data
1 BINARY  T 0      NTS      35316534383537366138316130303
*****
::CHECK PARSED STATEMENT VALIDITY
::PARSE 'SQLCURS_4' 2013-07-18 18:38:33.484000 [0x0000000003EAA470]
SQL COMMAND:'SELECT LVALUE, SHORT_VALUE, LONG_VALUE, COMPRESSED FROM C
PARSE ID: 0001738F 00001801 54002C00 [1]
SQLRETURN      : SQL_ERROR
```

### Conclusion from developer:

Due to the 254 byte string terminated with NTS, the input is 255 bytes instead of the expected 254 length.

You see an excerpt from the created ODBC trace which helped the developer to identify the cause.

Even if the created trace is shown in plain text it is often not trivial to interpret it.

## Problem after Upgrade (III) – Processing on BC-SRV-KPR-CS

---

### **Further actions:**

Request to activate SAPHTTP traces, reproduce the issue and provide the trace files (Note 164203)

### **Solution:**

There were known issues when migration was done from 7.6 to 7.8 and long filenames could not be opened with MAXDB 7.8 any longer.

The problem is caused by the ODBC driver version 7.8.  
It comes from a suppressed truncation error in 7.6 which pops up in 7.8.

Register ODBC Driver 7.6.

The combination of ODBC 7.6 and MaxDB7.8 is recommended and supported.

Even if there is not an error in ODBC driver 7.8 which could be fixed the recommended solution was to switch back to 7.6 ODBC as it is less exact and thus does not encounter the error.

# Agenda

1. SAP Content Server Interfaces
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## Additional Information (I) - Notes

---

### Note 329473

- Information about ContentServer.INI
- How to set trace options for different traces?
- How to create cs\_trace.txt? (set sqltrace = = true)

### Note 164203

- How to create an SAPHTTP trace?
- dev\_http

### Note 506314

- Additional information concerning SAPHTTP and SSL support
- Set HTTP\_TRACE to 2
- Create dev\_http



## Additional Information (II) - Notes

---

### Note 1428709

- Valid as of version 7.7
- How to create an ODBC trace?
- How to use `odbc_cons`?

### Note 1405031

- Valid until version 7.6
- How to create an ODBC trace on a Windows server?
- How to use `odbcereg`?

### Note 1571193

- Versions 7.7 and 7.8
- Problems with ODBC tracing in described versions

### Note 698915

- How to install a MaxDB ODBC driver for versions 7.3 to 7.9?

## Additional Information (III) - Notes

---

### Note 1764842

- Describes a connection problem to Content Server
- How to do the registration with odbcreg?
- driver names

### Note 761387

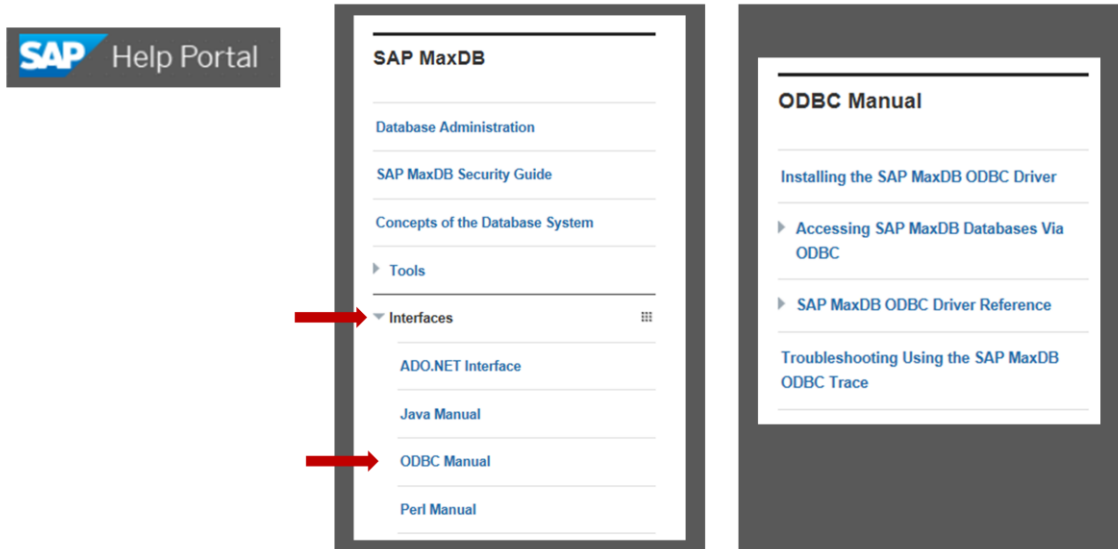
- Support Information for SAP Content Server

Find here some more general SAP Notes concerning Content Server:

- 111078            Collective Note for Knowledge Warehouse
- 1619726        FAQ: SAP MaxDB Content Server
- 822239         FAQ: MaxDB Interfaces
- 962019         System Copy of SAP MaxDB Content Server Database

## Additional Information – MaxDB Documentation

- Depending on the used version the MaxDB documentation looks a bit different
- You find more detailed information about ODBC in the following way (example for 7.8):



## Additional Information – MaxDB Documentation

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Use the following links to step into MaxDB Documentation:

**Version 7.8:**

[http://help.sap.com/saphelp\\_nw73/helpdata/en/44/b7012835041388e1000000a155369/content.htm?frameset=/en/44/b7012835041388e1000000a155369/frameset.htm](http://help.sap.com/saphelp_nw73/helpdata/en/44/b7012835041388e1000000a155369/content.htm?frameset=/en/44/b7012835041388e1000000a155369/frameset.htm)

**Version 7.7:**

[http://help.sap.com/saphelp\\_maxdb77/helpdata/en/44/b7012835041388e1000000a155369/frameset.htm](http://help.sap.com/saphelp_maxdb77/helpdata/en/44/b7012835041388e1000000a155369/frameset.htm)

**Version 7.6:**

[http://help.sap.com/saphelp\\_nw70/helpdata/en/07/595f51b1889b478869e338198171b5/frameset.htm](http://help.sap.com/saphelp_nw70/helpdata/en/07/595f51b1889b478869e338198171b5/frameset.htm)



# Questions

SAP® MaxDB™ Content Server – Traces



# SAP® MaxDB™ – Expert Sessions Learning Map (1)

SAP® MaxDB™ Features	SAP® MaxDB™ Administration	SAP® MaxDB™ Problem Analysis
Session 1: Low TCO with the SAP MaxDB Database	Session 2: Basic Administration with Database Studio	Session 5: SAP MaxDB Data Integrity
Session 6: New Features in SAP MaxDB Version 7.7	Session 3: CCMS Integration into the SAP System	Session 14: SAP MaxDB Tracing
Session 8: New Features in SAP MaxDB Version 7.8	Session 11: SAP MaxDB Backup and Recovery	Session 12: Analysis of SQL Locking Situations
	Session 13: Third-Party Backup Tools	
	Session 19: SAP MaxDB Kernel Parameter Handling	
SAP® MaxDB™ Installation/Upgrade		
Session 7: SAP MaxDB Software Update Basics		

All Expert Sessions (recording and slides) are available for download  
<http://maxdb.sap.com/training/>

## SAP® MaxDB™ – Expert Sessions Learning Map (2)

SAP® MaxDB™ Architecture	SAP® MaxDB™ Performance	SAP® MaxDB™ & Content Server
Session 18: Introduction MaxDB Database Architecture	Session 4: Performance Optimization with SAP MaxDB	Session 23: SAP MaxDB & Content Server Architecture
Session 15: SAP MaxDB No-Reorganization Principle	Session 9: SAP MaxDB Optimized for SAP BW	Session 24: SAP MaxDB & Content Server Housekeeping
Session 17: SAP MaxDB Shadow Page Algorithm	Session 16: SAP MaxDB SQL Query Optimization (Part 1)	Session 25: SAP MaxDB & Content Server ODBC Tracing
Session 12: Analysis of SQL Locking Situations	Session 16: SAP MaxDB SQL Query Optimization (Part 2)	
Session 10: SAP MaxDB Logging	Session 22: SAP MaxDB Database Analyzer	
Session 20: SAP MaxDB Remote SQL Server		
Session 21: SAP MaxDB DBM Server		

All Expert Sessions (recording and slides) are available for download  
<http://maxdb.sap.com/training/>

Thank You!  
Bye, Bye – And Remember Next Session

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	<b>Feedback and further information:</b> <a href="http://www.scn.sap.com/irj/sdn/maxdb">http://www.scn.sap.com/irj/sdn/maxdb</a>
	<b>Next Session: May 13, 2014</b> <b>SAP MaxDB – Introduction into I/O concept 7.8</b>





# Thank you

Contact information:

[Oksana.Alekseious@sap.com](mailto:Oksana.Alekseious@sap.com)

[Heike.Gursch@sap.com](mailto:Heike.Gursch@sap.com)

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