SAP® MaxDB™ Expert Session

SAP® MaxDB™ & SAP® Content Server - Architecture
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SAP® MaxDB™ Expert Session

SAP® MaxDB™ Content Server – Architecture

Oksana Alekseious, Senior Developer
Christiane Hienger, Development Expert

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1. SAP Knowledge Provider

2. SAP Content and Cache Servers

3. Content Server Transactions
4. SAP MaxDB ODBC Driver
5. SAP MaxDB Table Structure of Repositories
6. SAP MaxDB Kernel Database Software Versions
7. Useful further Information

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1. SAP Knowledge Provider

Knowledge Provider is a cross-application and cross-media technical information infrastructure within the framework of SAP Web Application Server. It 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

The central task of the Knowledge Provider is the handling of all kind of documents within the frame of the SAP R/3 system.
But as the focus of our Expert Session is on the place of SAP MaxDB database in the SAP Content Server we concentrates more on the Content Management Service branch with the SAP MaxDB as one of the storage system and the interfaces between Knowledge Provider and Content Server, and Content Server and the database as storage system.

SAP Knowledge Provider Overall Architecture
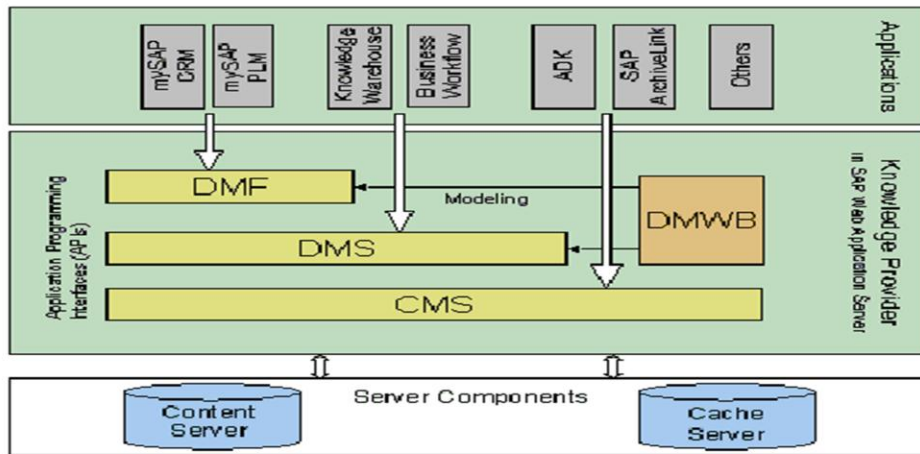
There are listed three KPro services: Document Management Framework (DMF), Document Management Service (DMS) and Content Management Service (CMS). The two first are using the Document Modeling Workbench (DMWB) as a tool for maintaining document administration models. The Content Management Service functions are an interface between content servers and the SAP system for adding, handling and deleting all kind of documents.

SAP CRM - SAP Customer Relationship Management
SAP PLM - SAP Customer Relationship Management
ADK - Archive Development Kit

SAP KPro Features

Within its information technology infrastructure, SAP Knowledge Provider provides the following services:

- Integration of KPro client applications
- Integration of KPro services: Document Management Framework (DMF), Document Management Service (DMS) and Content Management Service (CMS)
- Integration of content and cache servers

It is the Content Management Service which connects the R/3 system with the Content/Cache Servers and provides the smooth handling of the documents stored in the SAP MaxDB from all involved SAP applications.

SAP Kpro Client Applications

Client applications use KPro by integrating KPro interfaces into their systems.
- SAP Knowledge Warehouse
- Document Management System (DMS)
- Business Document Service (BDS)
- SAP Business Workflow
- SAP Business Workplace
- Archive Development Kit (ADK)
- SAP Archive Link

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If an application can use Kpro interface it can be integrated in the Knowledge Provider and uses its offered services.

SAP Kpro Services

SAP KPro provides the following services:

- Document Management Service (DMS) allows you to process documents and document-like objects on the basis of application-specific content models. It also allows you to modify document administration data and to store document content on content servers.
- Content Management Service (CMS) a service within the IT infrastructure provided by Knowledge Provider within the framework of SAP Web Application Server The central feature of the CMS is that it is designed to be compatible with different types of storage media. In other words, the CMS functions as an interface between content servers and the SAP system.

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Document Management Service can create content models with different document types like text, graphic, video sequences, websites which can have different list of characteristics like format, author, 'last changed by', language and others.

The Content Server is using the CMS functions. Some of them can support the customer by checking the database content as for example *docGet*.
An example and explanation you'll find later in this presentation.

SAP Kpro Server Integration

SAP Kpro provides as one of its crucial services the integration of following servers:

- SAP Content Server allows you to integrate SAP Content Sever or external content servers.
- Cache Server allows documents to be cached and is used to speed up access to document content.

The Content Server will be handled in detail in the next section.

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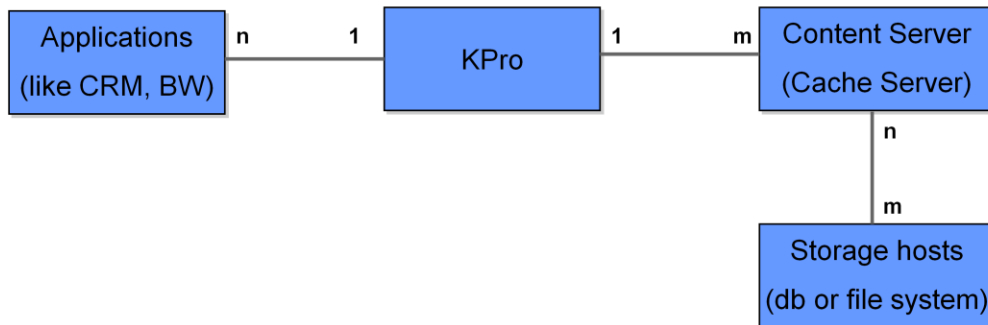**SAP**

2. SAP Content Server

- 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 in the content server installation directory. The content of this file is described in the SAP note 329473 "Description of the file ContentServer.INI"

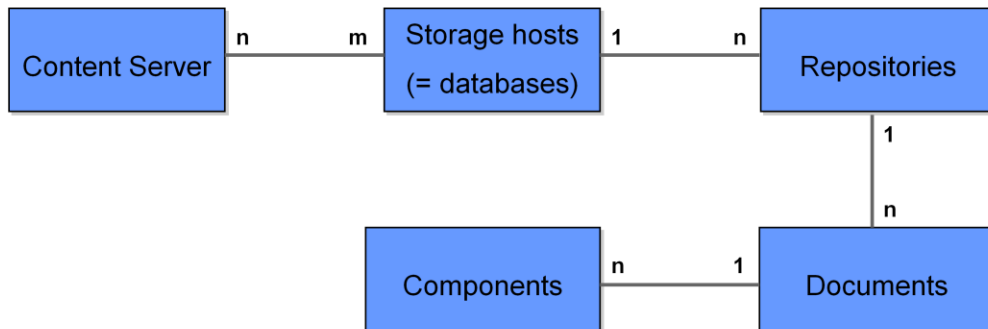The database components are supported by SAP MaxDB team.

Communication Ways within SAP System

Applications (like CRM, BW) — n — 1 — KPro — 1 — m — Content Server (Cache Server) — n — m — Storage hosts (db or file system)

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You can use all SAP application which have an KPro interface to pass documents to **one** Knowledge Provider.
The Knowledge Provider communicates via RFC and SAPHTTP interface with **one** or **several** Content/Cache Servers.

Any Content Server communicate with one or several storage hosts. One or several Databases and/or File Systems can be used at the same time for one Content Server. But also one Database can contain data of several Content Servers.

Communication Ways within SAP Content Server

```
┌─────────────────┐  n        m ┌─────────────────┐ 1       n ┌─────────────────┐
│                 │─────────────│  Storage hosts  │───────────│                 │
│  Content Server │             │  (= databases)  │           │   Repositories  │
│                 │             │                 │           │                 │
└─────────────────┘             └─────────────────┘           └─────────────────┘
                                                                        │ 1
                                                                        │
                                                                        │ n
                                ┌─────────────────┐ n       1 ┌─────────────────┐
                                │                 │───────────│                 │
                                │   Components    │           │    Documents    │
                                │                 │           │                 │
                                └─────────────────┘           └─────────────────┘
```

One database can contain several repositories but one repository can **never** be distributed to two databases or to another storage hosts. A repository contains the list of all documents and the documents itself which are stored in the repository.

It is recommended to have different repositories for ease of administration. The troubleshooting from application side (KPRO) would be easier when there is a repository for each document class and there will be a segregation of documents based on different applications. Based on the repository name at the content server level, we can also narrow down the applications which are using this repository.

A document can have different components e.g. pdf, png, doc, gif….. We are talking about the storage layer later in this session.

Advantages of the SAP Content Server

- The SAP Content Server provides a flexible and scalable architecture. You can improve the capacity and performance of the SAP Content Server by using a number of servers and by decoupling the database server from the HTTP server.
- The database is much better suited than a file system to the administration of large amounts of data.
- The database instance version is independent of the SAP release. The database has a capacity of 32 terabytes. In the unlikely event of this space being used up, another database instance can be installed.
- Database administration tools, which are easy to use, are delivered with it. These can be used to make automatic backups, for example.

Most advantages of the SAP Content Server is caused by the fact that a database is used as the storage layer. SAP only supports SAP MaxDB as a content server database.

Knowledge Provider and Caching

A cache is used to store copies of documents when they are accessed for the first time. The copies in the cache can be replaced with newer content at any time. The cache server is ideal for scenarios in which many different users have joint access to the cache. The documents only have to be sent once across the wide area network.

Caching is not the same as replication.
- The original document is still located on the content server.
- The content server can retrieve the cache content at any time.
- Only documents that are actually requested (and therefore needed) are transferred.

The Cache Server installation is by default offered within the Content Server installation. The database CDB can also created to the same time. The Cache Server is used often in the geographically wide distributed customer environment with highly frequent document access.

It is better to install one or several Cache Server after the detailed analysis of the productive use of the Content Server.

Differences between the Cache and the Content Servers

- The cache server can set up its own HTTP connections to content servers or other cache servers. If the server in question is another cache server, this architecture is known as cascaded or multi-layer caching level
- The cache server is completely free from the database administration. As soon as the cache server is integrated into the server topology, it can start performing its services without the need for log monitoring or backups.
- Caches are always used for **read access** to documents.

Please be really aware that the log writing is by default **disabled** in the Cache Server database. We will talk about this in detail later in this session.
You will be pointed to the risk if the Cache Server will be by mistake used as Content Server and huge amount of the documents will be changed on the Cache Server and not as recommended on the original Content Server.

SAP Cache Server Structure
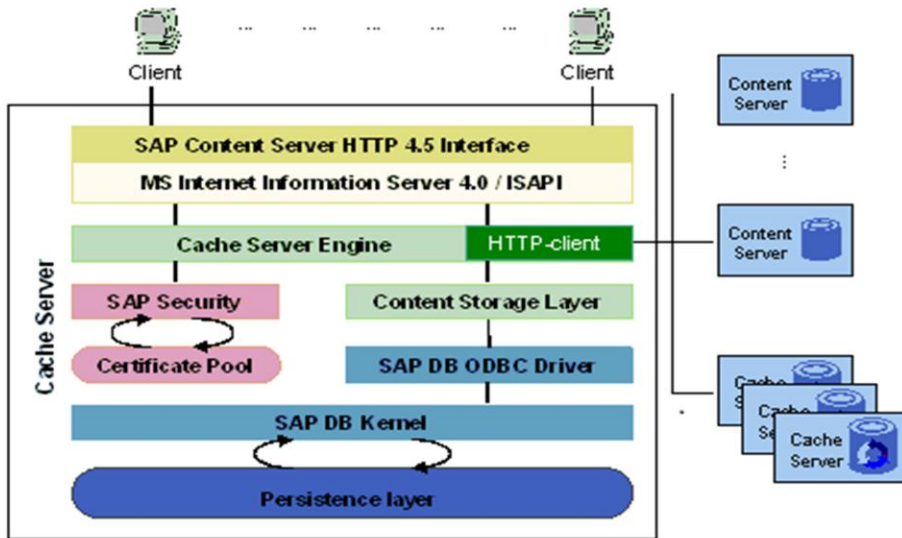
The HTTP-client is the part of the Cache Server which differs it to the Content Server.
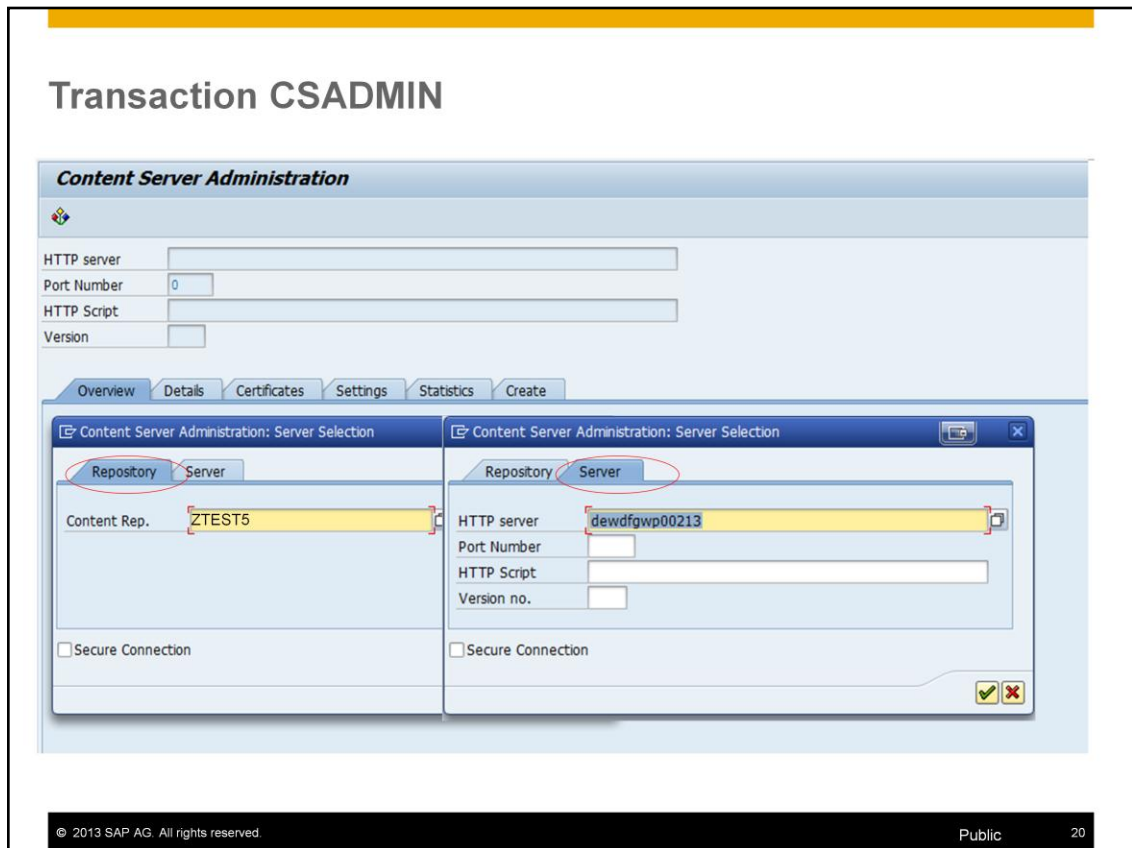
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Transaction CSADMIN

Content Server Administration

HTTP server	
Port Number	0
HTTP Script	
Version	

Tabs: Overview | Details | Certificates | Settings | Statistics | Create

Content Server Administration: Server Selection

Tabs: Repository | Server

Content Rep.	ZTEST5

☐ Secure Connection

Content Server Administration: Server Selection

Tabs: Repository | Server

HTTP server	dewdfgwp00213
Port Number	
HTTP Script	
Version no.	
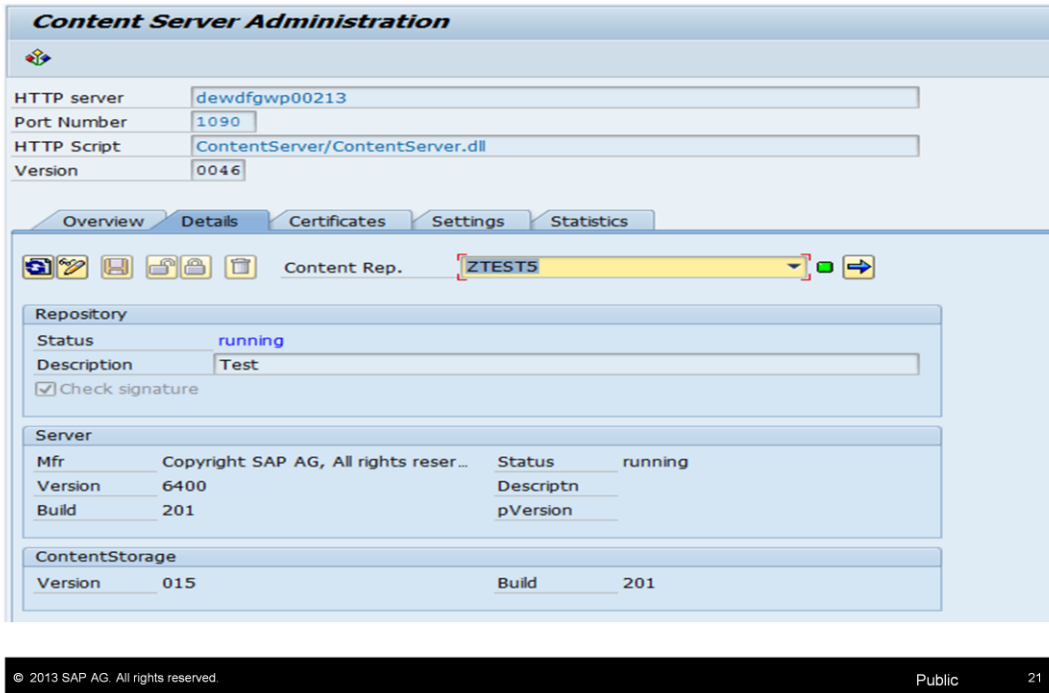
☐ Secure Connection

By calling the administration transaction CSADMIN the concrete content repository from the list of all existing repositories in this Content Server or the concrete server which contains a needed repository in the file system or 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.
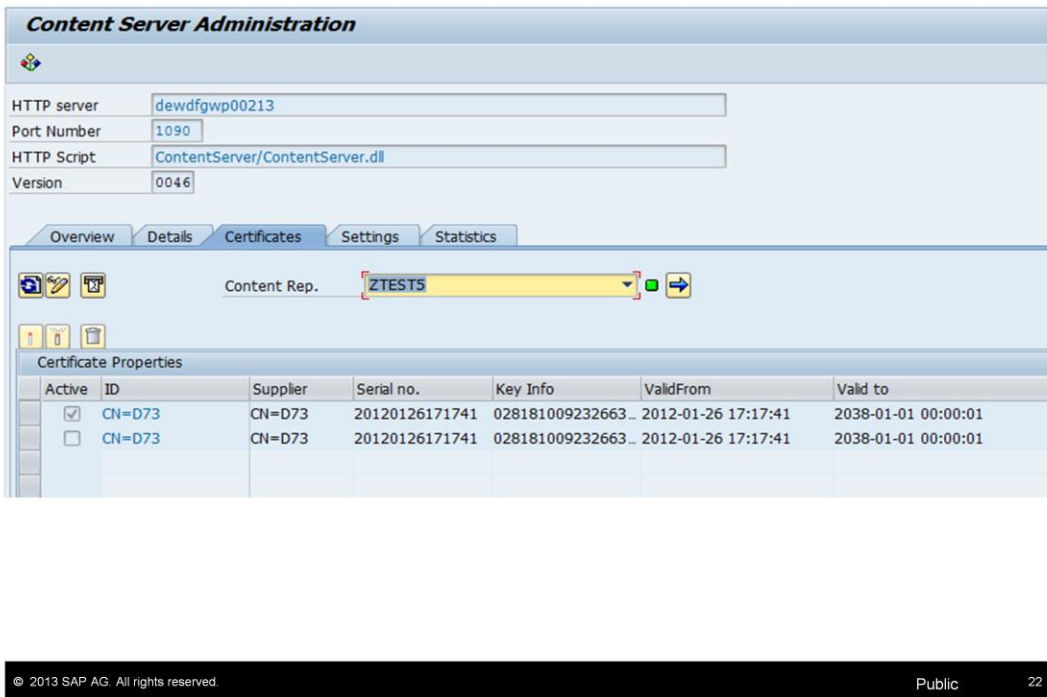
Transaction CSADMIN - Details

Content Server Administration

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

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

Content Rep.   ZTEST5

Repository
Status	running
Description	Test

☑ Check signature

Server
Mfr	Copyright SAP AG, All rights reser…	Status	running
Version	6400	Descriptn	
Build	201	pVersion	

ContentStorage
Version	015	Build	201

In the Details tab the Content Server version and build are shown together with the status of this content repository. If the database is in the offline status, the repository will also have the offline status.

Transaction CSADMIN - Certificates

Content Server Administration

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

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

Content Rep. ZTEST5

Certificate Properties

Active	ID	Supplier	Serial no.	Key Info	ValidFrom	Valid to
✓	CN=D73	CN=D73	20120126171741	028181009232663…	2012-01-26 17:17:41	2038-01-01 00:00:01
☐	CN=D73	CN=D73	20120126171741	028181009232663…	2012-01-26 17:17:41	2038-01-01 00:00:01

The Certificates tab lists the existing security sertificates.

CSADMIN Repository Settings

Content Server Administration - Change

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

Tabs: Overview | Details | Certificates | Settings | Statistics | Create

Content Rep. ZTEST5

Repository Settings

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 another settings.

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

Transaction CSADMIN - Statistics

Content Server Administration

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

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

Name	Conts.
serverType	SAP HTTP Content Server
serverVendorId	Copyright SAP AG, All rights reserved 1998, 2001
serverVersion	6400
serverPatch	9
serverBuild	201
startUpDate	2014-01-09 11:30:41
lastAccessDate	2014-01-09 12:26:24
average100ResponseMilliSec	4587
min100ResponseMilliSec	1
max100ResponseMilliSec	62455
average1000ResponseMilliSec	495
min1000ResponseMilliSec	1
max1000ResponseMilliSec	62455
requests	1043
programErrors	0
processAttach	1
processDetach	0

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The Statistics tab shows the partial result of the connection test to the Content Server which can be run completely with the test program RSCMSTHS. The calling of this test program is described in the next slides.

CSADMIN Create Repository

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.	MaxDB
Description	Expert Session: MaxDB & Content Server

☑ Check signature

Repository Settings

Name	Conts.
ContentStorageHost	localhost
ContentStorageName	SDB
Storage	ContentStorage.dll

All new repositories are created in the CSADMIN transaction. At least the name of the database server, the name of the database, the repository name and the repository description should be entried into the settings.

RSHTTP05 Report SAPHTTP check

ABAP Editor: Initial Screen

Program   RSHTTP05   [ ] Create

Subobjects

- ⦿ Source code
- ○ Variants
- ○ Attributes
- ○ Documentation
- ○ Text elements

Display   Change
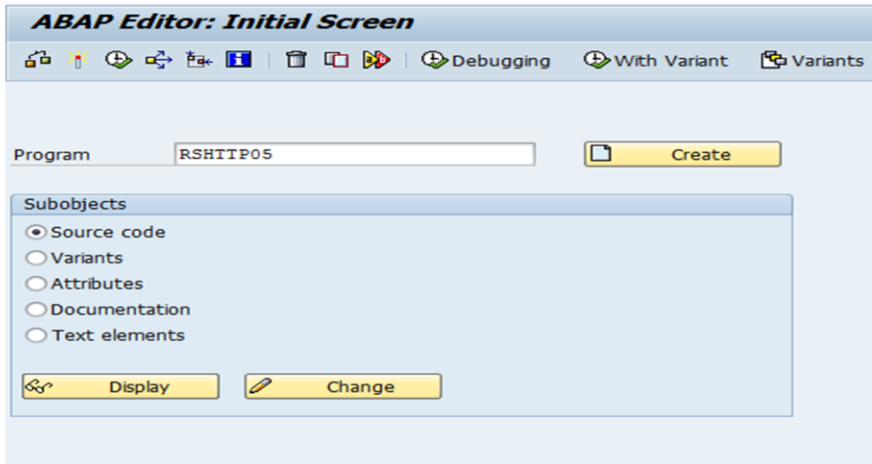
In transaction SE38 several important CS related reports can be run for checking different sides of the Knowledge Provider and Content Server. So we can start the SAPHTTP check report RSHTTP05.

Knowledge Provider RFC Destination

SAPHTTP check

SAPHTTP check

```
Check RFC destination SAPHTTP...
... OK.
Ping RFC destination SAPHTTP...
... OK.
Check RFC destination SAPHTTPA...
... OK.
Ping RFC destination SAPHTTPA...
... OK.
```

The **SAPHTTP check** checks all RFC destinations which are used in the communication between Knowledge Provider and Content Server.

If an error occurs here the database is not involved yet. These kind of errors have to be analyzed by the KPRO or Content Server (application) colleagues.

RSCMST Report

CMS: Test programs

Repository	ZTEST5
Frontend path	C:\Users\d037028\Documents\SAP\SAP GUI\
Backend path	
Cache	-
☐ Execute test in the background	
Mail recipient	
✓ Only Send Mail If Error Occurs	

After calling report RSCMST via transaction SE38 the concrete repository is chosen. This report collects the total range of Content Management Service (CMS) check programs and all of them are running for one concrete repository.

RSCMSTHS Content Server Connection Test

No. of test runs   1

⊕ ✎ OΔC	RSCMSTH0	HTTP interface test using function group SFTP	
⊕ OΔC	RSCMSTH1	HTTP interface test using function group SCMS_HTTP	
⊕ ✎ OΔC	RSCMSTH2	HTTP interface test using function group SCMS_HTTP (docProt)	
⊕ ✎ OΔC	RSCMSTH3	HTTP interface test using function group SCMS_HTTP (mCreate)	
⊕ ✎ OΔC	RSCMSTA0	Interface test using function group SCMS-API	
⊕ ✎ OΔC	RSCMSTAC	Interface test using function group SCMS_API (caching)	
⊕ ✎ OΔC	RSCMSTAT	Interface test using function group SCMS_API/SCMS_TR (transport)	
⊕ ✎ OΔC	RSCMSTHS	HTTP Interface Test (SAP Content Server)	

After the report RSCMST has been executed you'll get the following list of possible checks.

We are talking now about the RSCMSTHS check only. The test program RSCMSTHS is checking the **HTTP connection to the Content Server** using the data of one concrete data repository.

By choosing different repositories the connections to different Content Servers can be checked.

RSCMSTHS Results (1)

```
HTTP Interface Test (SAP Content Server)

prepare                                          ok

serverInfo
contRep                  ZTEST1
contRepDescription       Test
serverStatus             running
serverVendor             Copyright SAP AG, All rights reserved 1998, 2001
serverVersion            6400
serverBuild              201
serverTime               084036
serverDate               14.01.2014
serverStatusDescription
pVersion                 0046
contRepStatus            defined
contRepStatusDescription
ServerTime               14.01.2014 08:40:36
SAPTime                  14.01.2014 08:40:36
                                                 ok        165.559

certGet                                          ok        120.140
```

Now we are talking about the results of the check.

The RSCMSTHS test results show the repository name and description, the Content Server version and build.

Also you have a chance to see if there is any time difference between the SAP system and Content Server. This you must take into consideration if you check any traces.

RSCMSTHS Results (2)

```
statGet
serverType                        SAP HTTP Content Server
serverVendorId                    Copyright SAP AG, All rights reserved 1998, 2001
serverVersion                     6400
serverPatch                       9
serverBuild                       201
startUpDate                       2014-01-14 07:40:36
lastAccessDate                    2014-01-14 07:40:36
average100ResponseMilliSec        47
min100ResponseMilliSec            2
max100ResponseMilliSec            93
average1000ResponseMilliSec       47
min1000ResponseMilliSec           2
max1000ResponseMilliSec           93
requests                          3
programErrors                     0
processAttach                     1
processDetach                     0
badCommands                       0
badParameters                     0
internalErrors                    0
sendToClientBytes                 3040
receivedFromClientBytes           0
concurrentRequests                1
```

The last test result section of the RSCMSTHS test program shows details to the connection test: the average, minimum and maximum response time in milliseconds, the size of the data send to the Content Server, the amount of test requests.

The requests are handling the general R/3-client-server communication without the connection through the ODBC driver to the database.

RSHTTP52 Single Document Check

HTTP Content Server: docGet

⊕

Content Repository	ZTEST5
DocID	00000000000000000000000000000001
RFC Destination	SAPHTTP

DocID is an system-wide unique identifier for document header **assigned by the Knowledge Provider**.

The report RSHTTP52 can check if a document exists (used by support people in error situation). If the report results with d'document not found' additonal checks are necessary. How we check if a document really exists or not on database level will be handled later in this session.

The report runs the function *docGet* of the Content Server HTTP Interface. At the same time you can check with this report one single document, if the content repository which contains it and the concrete **DocID is known**.

RSHTTP52 Results (1)

```
HTTP Content Server: docGet

Status Code: 200    (OK)


Response Header:


HTTP/1.1 200 (OK)
Content-Length: 20000656
Content-Type: multipart/form-data; boundary=A495ukjfasdfddrg4hztzu898aA0jklmAxcvla1232014_01_15_07_26_12_894
Server: Microsoft-IIS/7.0
X-docId: 0000000000000000000000000000000001
X-dateC: 2013-06-06
X-timeC: 11:18:16
X-dateM: 2013-06-06
X-timeM: 11:18:16
X-numComps: 2
X-contentRep: ZTEST5
X-docStatus: online
X-pVersion: 0046
X-docProt: r
X-ContentServer: contentServer="dewdfgwp00213";contentServerPort="1090";pVersion="0046";id="SAP HTTP Content Server";
X-Powered-By: ASP.NET
Date: Wed, 15 Jan 2014 07:26:13 GMT
Connection: close
```

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The results of the report is the direct output of the HTTP function docGet without any additional handling that's why the response header contains the information needed for the connection to the right repository: database server name, communication port, the repository name, document id and further retrieved information about the time stamp of the document, its length, class and status.

RSHTTP52 Results (2)

Response Body:

```
¯A495ukjfasdfddrg4hztzu898aA0jklmAxcvla1232014_01_15_07_26_12_894
X-compId: COMP-000002
Content-Type: text/plain
Content-Length: 10000000
X-Content-Length: 10000000
X-compDateC: 2013-06-06
X-compTimeC: 11:18:16
X-compDateM: 2013-06-06
X-compTimeM: 11:18:16
X-compStatus: online

line 00000001   COMP-000002        00000000000000000000000000000001                        xline 00000002   COMP
-000002         00000000000000000000000000000001                      xline 00000003   COMP-000002
00000000000000000000000000000001                 xline 00000004   COMP-000002         00000000000000000000
000000000001                 xline 00000005   COMP-000002         00000000000000000000000000000001
```

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The report delivers also the full content of the document extracted from the corresponding COMPONENTS* table.

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4. SAP MaxDB ODBC Driver

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 build through SAP Content Server code

For nearly all aspects in connection with the MaxDB ODBC driver the most important information is whether Content Server is running on Windows or UNIX/Linux.
This is the first point which should be taken into the consideration when for example a problem situation with the Content Server or/and storage host should be analyzed.

SAP Content Server Structure on Windows

Client — Client

SAP Content Server

SAP Content Server HTTP 4.5 Interface

Microsoft Internet Information Server

Content Server Engine

SAP security — Content Storage Layer

Certificate pool — MaxDB ODBC driver

SAP MaxDB kernel

Rep $_1$ — Database — Rep $_n$

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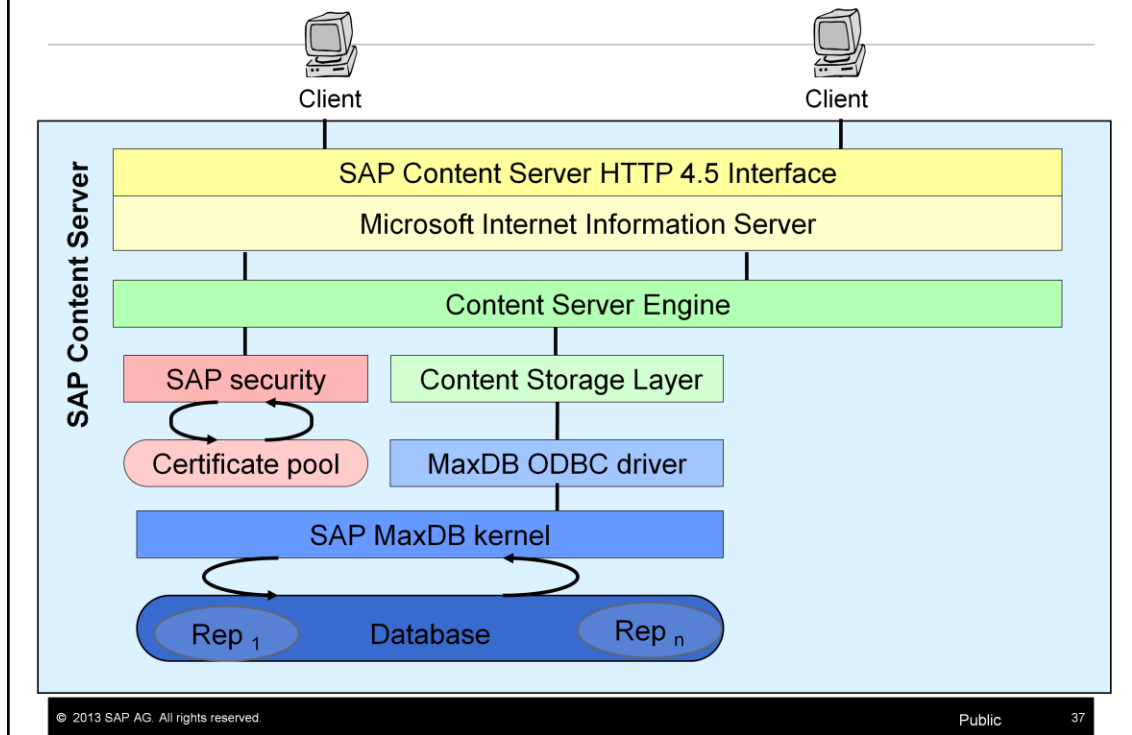
The usage of SAP MaxDB database as storage host for the Content Server was initially developed for the use on Windows. The request for a document is sent as an URL with the SAPHTTP interface to the Content Server which transfers it to the Microsoft IIS Server. After passing the IIS Server the request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

ODBC Driver on Windows

- The used ODBC driver version is defined by the MaxDB database software installed on the database server and the registered ODBC driver

- For producing an ODBC trace the ODBC MaxDB tools are used. Their choice depends on the ODBC driver version

- *sdbregview -l | find /I "ODBC"*

On the database server several versions of the database software can be installed. Also several ODBC drivers with different database versions and names can be registered on the database server.

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.

If the ODBC trace is taken from the Windows OS side it is important to use the OS user which is used by default for the Content Server and storage host communication line.

MaxDB Version and ODBC Driver

On Windows a special ODBC MaxDB tool is used for registering the ODBC MaxDB driver, checking it and its options, producing the ODBC trace for problem analysis. There are MaxDB < 7.7

- odbcreg for the MaxDB ODBC driver version < 7.7
- odbc_cons for the MaxDB ODBC driver version >= 7.7

If the ODBC versions 7.7. or 7.8 are used on the system at least the following concrete software versions

- 7.7.07. >= Build 32
- 7.8.02. >= Build 22

See SAP note 1571193 Using MaxDB Versions 7.7 & 7.8 in the content server system

SAP Content Server Structure on UNIX

Client   Client

SAP Content Server

SAP Content Server HTTP 4.5 Interface

Apache 1.3 Webserver

Mod_sapcs.so

SAP security   SAPDBStorage   Filesystem Storage

Certificate pool   MaxDB ODBC driver

MaxDB kernel

Rep$_1$ Database   Rep$_n$ Unix Filesystem/ NFS/Samba
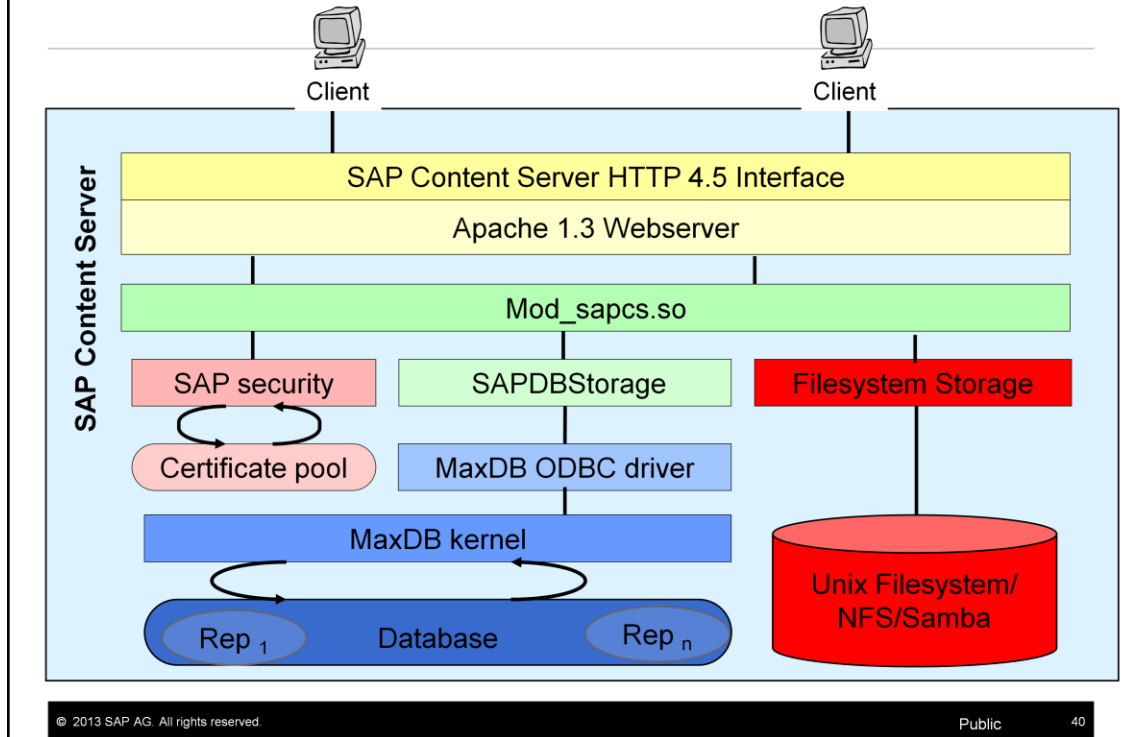
The usage of SAP MaxDB database as storage host for the Content Server was developed for the UNIX/Linux operating systems additionaly. The request for a document is sent as an URL with the SAPHTTP interface to the Content Server which transfers it to the Apachi Webserver. After passing the Apachi Webserver the request arrives the ODBC driver. The driver is statically linked in this case into the Content Server software as shared library which handles the information and provide 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 Content Server configuration file cs.conf is with the parameter Sqltrace=1 used. The parameter Sqltrace in the section [contRep-<RepositoryName>] should be set to 1 through 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 the part of the Content Server installation as the statically linked shared library that's why it can't be changed or used with the database tools and/or database installation.

The Content Server configuration file is **cs.conf** on UNIX/Linux and **ContentServer.INI** on Windows. It describes the setting up of the repositories that can be addressed from the content server. The configuration file MUST be 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 the maintenance and administration of the content server.
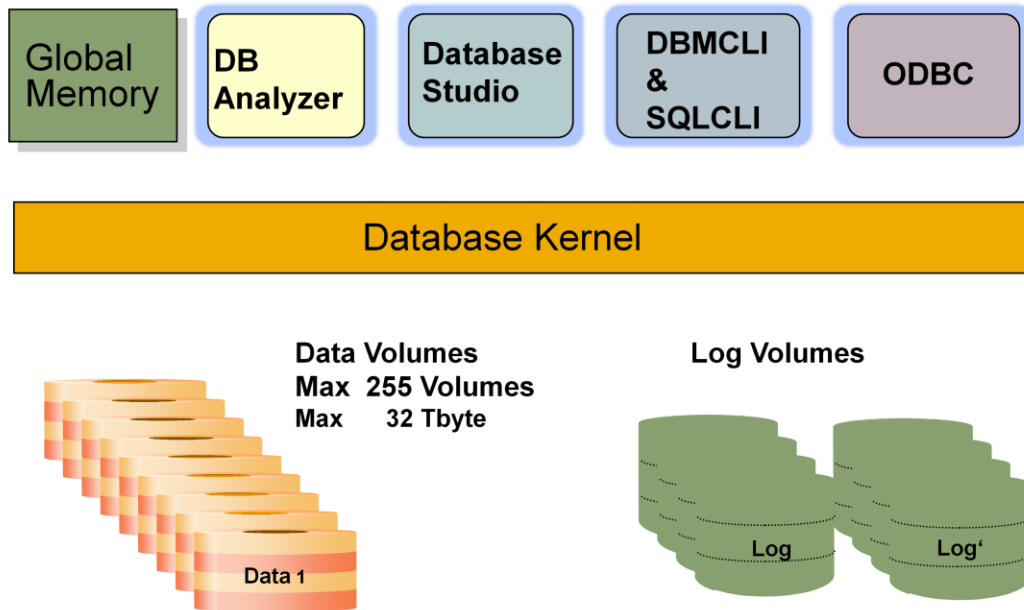
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SAP MaxDB Database Configuration and Tools

Let's now have a closer look to the database configuration.

On the top level we have several tools. The database Analyzer is used for performance analysis of the database system. The Database Analyzer is not started by default in the Content Server environment.

The Database Studio is the graphical user interface used to administrate the database
- Add new Data area to the system,
- run backups of the data and log area
- Check data base structure ….

We will talk about those housekeeping tasks in the next Expert Session about SAP MaxDB & Content Server Housekeeping Tasks.

DBMCLI and SQLCLI are the command line interfaces for administration (DBMCLI) and SQL requests (SQLCLI).
Lets focus now on the bottom of the slide:

The Database Storage level
MaxDB has some important configuration limits which you should keep in mind.

By Default you can **configure up to 255 Data volumes**. So it is recommended to use a useful data volume size.

Please notice to get best performance you should use the same size for all data volumes.

It is not useful to use only one large data volume. Some database system ressources depend on the number of volumes.

The maximum size of one MaxDB database is 32 Tbyte. Remember you can use more than one Content Server database in your SAP Knowledge Provider landscape. The Log area contains the after images of changes on database level. The before images are logged as well in the data area.

To get more detailed information about the database configuration you can use Expert Session about SAP MaxDB Architecture.

During restart of the database the Global Memory (e.g. data and converter cache) are allocated. All data are processed in one area of the global memory (Data Cache). Changes and inserts into the database are first stored in the Data Cache only. Asynchronously with each savepoint the data is written to the disk. By default every 10 minutes a savepoint is written.

Exception: if you switched off the log writer – which is default for the Conent Cache Server, there is no savepoint written periodically. Only when the database is stopped with normal shutdown a savepoint is triggered and the data is stored from the Cache to the disk. If you kill the database process no savepoint is written and all changes are gone.

The Database Kernel is processing the User requests sent from the application to the Database. In SAP Knowledge Provider environment the application is communicating with the SAP MaxDB Database via ODBC.

SAP Content Server Tables

ContentServer.INI

[contRep-ZTEST5]
ContentStorageHost=localhost
ContentStorageName=CS

CS

Tab CONTREP

CONTREPNAME	CONTREPNR	VERSION
ZTEST5	4	2

Tab DOCUMENTS0004
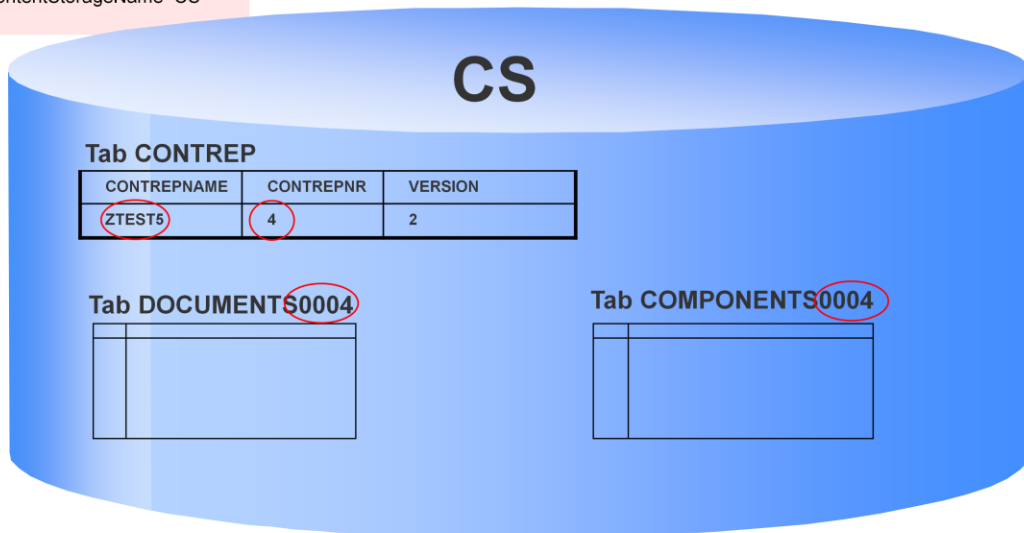
Tab COMPONENTS0004

After an installation the MaxDB Content Server storage database is named by default SDB and the local Cache Server has the database name CDB.
The User which is created on each database is named SAPR3. This user is owner of all tables in the database.

Now let's have a closer look to the database content of the SAP MaxDB database which is in this example named CS.

In the MaxDB database a central table named CONTREP exists. Additionally for each repository which you have defined via CSADMIN (ContentServer.ini) 2 additional tables exist – DOCUMENTS<no> and COMPONENTS<no>

SAP Content Server Table: CONTREP

SELECT * from domain.COLUMNS where tablename = ‚CONTREP'

TABLENAME	COLUMNNAME	MODE	DATATYPE	INTERNALDATATYPE	CODETYPE	LEN	DEC	NULLABLE	COLUMNPRIVILEGES
CONTREP	CONTREPNAME	OPT	VARCHAR	VARCHAR	ASCII	255	?	YES	SEL+UPD+
CONTREP	CONTREPNR	OPT	INTEGER	INTEGER		10	0	YES	SEL+UPD+
CONTREP	VERSION	OPT	INTEGER	INTEGER		10	0	YES	SEL+UPD+

CONTREPNAME	CONTREPNR	VERSION
ZTEST1	2	2
ZTEST4	3	2
ZTEST5	4	2
SNEHA	5	2
TEST_REPO	6	2
REP_ASMA	7	2
C12	8	2

Select * from CONTREP

Repository is a collection of documents. It is recommended to have different repository for ease of administration.
The table CONTREP contains all of the repositories that are defined in this content server.
It consists of the following columns:

- CONTREPNAME Name of the repository
- CONTREPNR This number determines the extension of the relevant tables DOCUMENTS<no> and COMPONENTS<no>.
  For example:
  CONTREPNR = 1
  DOCUMENTS0001
  COMPONENTS0001
- VERSION Indicates the version of the repository

In this Content Server database we have 7 repositories created.

In this session we use for all examples the repository no 4 => ZTEST5.

SAP Content Server Repositories (Tables)

```
select * from domain.tables
where tablename like 'DOCUMENTS%'
or tablename like 'COMPONENTS%'
```

OWNER	TABLENAME	PRIVILEGES	TYPE	TABLETYPE	CREATEDATE	CREATETIME
SAPR3	COMPONENTS0002	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-05-30	16:56:32
SAPR3	COMPONENTS0003	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-06-06	11:16:34
SAPR3	COMPONENTS0004	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-06-06	12:09:16
SAPR3	COMPONENTS0005	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-06-27	15:47:55
SAPR3	COMPONENTS0006	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-07-02	05:49:03
SAPR3	COMPONENTS0007	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-07-02	07:05:13
SAPR3	COMPONENTS0008	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-07-16	04:51:10
SAPR3	DOCUMENTS0002	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-05-30	16:56:32
SAPR3	DOCUMENTS0003	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-06-06	11:16:34
SAPR3	DOCUMENTS0004	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-06-06	12:09:16
SAPR3	DOCUMENTS0005	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-06-27	15:47:55
SAPR3	DOCUMENTS0006	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-07-02	05:49:03
SAPR3	DOCUMENTS0007	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-07-02	07:05:13
SAPR3	DOCUMENTS0008	SEL+UPD+DEL+INS+REF+IND+ALT+	TABLE	TABLE	2013-07-16	04:51:10

The content of table CONTREP tells us that 7 repositories are created. To check that all related tables are existing in the database as well we use the following Select:

*select * from domain.tables*

where tablename like 'DOCUMENTS%'

or tablename like 'COMPONENTS%'

Please notice if you execute this SQL command on database level (e.g. database Studio in an SQL editor) you have to use ANSI SQL syntax for search wild cards which is % not *

Result:14 further tables – 7 tables named DOCUMENTS *

and 7 tables named COMPONENTS*

Structure of Tables: DOCUMENTSxxxx

OWNER	TABLENAME	COLUMNNAME	MODE	DATATYPE	INTERNALDATATYPE	CODETYPE	LEN	DEC	NULLABLE	COLUMNPRIVILEGES
SAPR3	DOCUMENTS0001	NAME	KEY	VARCHAR	VARCHAR	ASCII	64	?	NO	SEL+UPD+
SAPR3	DOCUMENTS0001	LPROPERTY	OPT	FIXED	FIXED		10	0	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	SHORT_PROPERTY	OPT	VARCHAR	VARCHAR	BYTE	512	?	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	LONG_PROPERTY	OPT	LONG	LONG	BYTE	?	?	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	LVALUE	OPT	FIXED	FIXED		10	0	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	SHORT_VALUE	OPT	VARCHAR	VARCHAR	BYTE	3200	?	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	LONG_VALUE	OPT	LONGFILE	LONGFILE	BYTE	?	?	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	DATEM	OPT	DATE	DATE		8	?	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	TIMEM	OPT	TIME	TIME		8	?	YES	SEL+UPD+
SAPR3	DOCUMENTS0001	COMPRESSED	OPT	CHAR	CHAR	ASCII	1	?	YES	SEL+UPD+

```
Select * from domain.columns
where tablename = 'DOCUMENTS0001'
```

The *documents* tables are storing the **meta data of a document not the document itself.**

In the key Column *Name* the document-ID is stored. Please notice that the document id is stored case sensitive on the database level. You must know this if you want to select data from the table for a special document-id.
Please focus now on the CodeType of the columns – all char columns must have the code type ASCII. The tables are in the schema of the user SAPR3 which has to be created with DEFAULTCODE type ASCII.

The columns *SHORT_PROPERTY* and *SHORT_VALUE* contains administrative information. *SHORT_VALUE* contains the meta information about the

document. This column is of type char BYTE with max. length of 3200 bytes.

Structure of Tables: COMPONENTSxxxx

OWNER	TABLENAME	COLUMNNAME	MODE	DATATYPE	INTERNALDATATYPE	CODETYPE	LEN	DEC	NULLABLE	COLUMNPRIVILEGES
SAPR3	COMPONENTS0001	NAME	KEY	VARCHAR	VARCHAR	ASCII	254	?	NO	SEL+UPD+
SAPR3	COMPONENTS0001	LVALUE	OPT	FIXED	FIXED		10	0	YES	SEL+UPD+
SAPR3	COMPONENTS0001	SHORT_VALUE	OPT	VARCHAR	VARCHAR	BYTE	3600	?	YES	SEL+UPD+
SAPR3	COMPONENTS0001	LONG_VALUE	OPT	LONGFILE	LONGFILE	BYTE	?	?	YES	SEL+UPD+
SAPR3	COMPONENTS0001	COMPDATEM	OPT	DATE	DATE		8	?	YES	SEL+UPD+
SAPR3	COMPONENTS0001	COMPTIMEM	OPT	TIME	TIME		8	?	YES	SEL+UPD+
SAPR3	COMPONENTS0001	CONTENTTYPE	OPT	VARCHAR	VARCHAR	ASCII	128	?	YES	SEL+UPD+
SAPR3	COMPONENTS0001	COMPRESSED	OPT	CHAR	CHAR	ASCII	1	?	YES	SEL+UPD+

```
Select * from domain.columns
where tablename = 'COMPONENTS0001'
```

Table COMPONENTS<no>

The table COMPONENTS<no> contains the actual documents that are saved in the column LONG_VALUE.

The key column *NAME* contains the document-id.

The column *LVALUE* contains the length information about this document.

The actual document is stored in the column *LONG_VALUE* stored in a Blob (LONGFILE BYTE)

The column CONTENTTYPE gives information about the type of a document e.g. plain text, pdf etc.

The column COMPRESSED is used by the application only and gives information if a document is compressed.

Example for content of table: DOCUMENTS0004

NAME	LPROPERTY	SHORT_PROPERTY	LONG_PROPERTY	LVALUE
4fdd135721e84d2be10000000ab5db5d	224	E0000000121F9D02D9030606064E20E602E2E4FCDC029FFCE4C49C542620CF99811B48E695E6...	?	267
4fdd5af821e84d2be10000000ab5db5d	224	E0000000121F9D02DD030606064E20E602E2E4FCDC029FFCE4C49C542620CF99811B48E695E6...	?	267
4fdd5afd21e84d2be10000000ab5db5d	224	E0000000121F9D027B0F1818183881980B8893F3730B7CF29313735299803C67066E2099579A9...	?	267
4fe069ee8e184d2ce10000000ab5db5d	224	E0000000121F9D02DD030606064E20E602E2E4FCDC029FFCE4C49C542620CF99811B48E695E6...	?	267
4fe1c3172bd44d29e10000000ab5db5d	224	E0000000121F9D02D9030606064E20E602E2E4FCDC029FFCE4C49C542620CF99811B48E695E6...	?	267
4fe1c7682bd44d29e10000000ab5db5d	224	E0000000121F9D02D9030606064E20E602E2E4FCDC029FFCE4C49C542620CF99811B48E695E6...	?	267
4fe1c76d2bd44d29e10000000ab5db5d	224	E0000000121F9D02DD030606064E20E602E2E4FCDC029FFCE4C49C542620CF99811B48E695E6...	?	267
4fe2009333414d29e10000000ab5db5d	224	E0000000121F9D02D9030606064E20E602E2E4FCDC029FFCE4C49C542620CF99811B48E695E6...	?	267
4fe2469433414d29e10000000ab5db5d	224	E0000000121F9D02B6070C0C0C9C40CC05C4C9F9B9053EF9C98939A94C409E33033790CC2B...	?	267

SHORT_VALUE	LONG_VALUE	DATEM	TIMEM	COMPRESSED
0B010000121F9D02D2F514A4200C03C17850D15CFC48318950B4D77811ECAD1F08C98A019B...	?	2012-06-20	10:01:36	1
0B010000121F9D02326E46060620626005E294C49244866F400608730131271027E7E716B82496...	?	2012-06-21	09:28:55	1
0B010000121F9D021D372303031031B002714A624922C337200384B98098138893F3730B5C124...	?	2012-06-21	09:29:10	1
0B010000121F9D02D2F514A4200C03C17850D15CFC48318954B4D77811ECAD1F08E94A0336...	?	2012-06-20	10:12:15	1
0B010000121F9D02D2F514A4200C03C17850D15EFC483189566AAFF122D85B3FB0345B2CD8...	?	2012-06-20	10:08:53	1
0B010000121F9D02D2F514A4200C03C17850D15CFC483189286DAFF122D85B3F10921503360...	?	2012-06-20	10:38:59	1
0B010000121F9D02D2F514A4200C03C17850D15CFC48310945B4D77811ECAD1F08C98A019B...	?	2012-06-20	10:40:04	1
0B010000121F9D02D2F5B4AC200C03C17850D15CFC91621ED062AFF522D85B7F6069562CD8...	?	2012-06-21	09:17:02	1
0B010000121F9D02B3EB294841180682F1A0A2B9F89162924A8BBDD68B606FFD4068571AB06...	?	2012-06-21	13:40:30	1

Here we have an example for the administrive information about documents.

Please pay attention to the case sensitive document name.

Short_property and *Short_value* are the meta data of the document which is stored with the same document id in the related table COMPONENTS0004.

The content of the *SHORT_VALUE* and *SHORT_PROPERTY* is sent as raw data via ODBC to the application. The application is doing the uncompression and conversion of the data.

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SAP Content Server Table: COMPONENTS0004

NAME	LVALUE	SHORT_VALUE	LONG_VALUE
4fdd135721e84d2be10000000ab5db5d\data	192812	?	W; 5 C : I"E# o q N z ? ▯ _ ▯ F{ ▯ }c{8 7 { v`v`v` …
4fdd5af821e84d2be10000000ab5db5d\data	146831	?	\ %Ru D F, c Q71ot ▯▯^ ? _ + _ ~ o F F o t <…
4fdd5afd21e84d2be10000000ab5db5d\data	146831	?	= e M jj ac 4)eIP* s 3 I k M K Ae P "THs } ~ }; ggOk] :▯ ^ u I* r } …
4fe069ee8e184d2ce10000000ab5db5d\data	192853	?	U S v E2 &S { d <G umC $ 2D IJ M B*T) H([[u s q { _ ys :] 2A L …
4fe1c3172bd44d29e10000000ab5db5d\data	192854	?	V e M I " E)B =O2d # !SfBE D "c I &S! * RQ$ y 8 < o o [BW_ B]&…
4fe1c7682bd44d29e10000000ab5db5d\data	192812	?	, e M j J , L2 y! !dHk !SfBE 1C DEQ h2 k y y x ; { Z ;▯ e%f ! %n ni !…
4fe1c76d2bd44d29e10000000ab5db5d\data	192812	?	, S & Y4 "d $C 9B kmC $D "c P d R2) E}V w ~ w I{ u]u w J PMC #K…
4fe2009333414d29e10000000ab5db5d\data	133673	?	) e M jj ac 4)eIP* s 3 I k M K Ae P "THs } ~ }; ggOk] :▯ ^ u I* r } …
4fe2469433414d29e10000000ab5db5d\data	162797	?	{)7 m Q A k M4 "$Y{ 4i. [4+*J BQ4*S P! Q"S ;w ~ } = = u : w^{3 W…

COMPDATEM	COMPTIMEM	CONTENTTYPE	COMPRESSED
2012-06-20	10:01:36	application/pdf	1
2012-06-21	09:28:55	application/pdf	1
2012-06-21	09:29:10	application/pdf	1
2012-06-20	10:12:15	application/pdf	1
2012-06-20	10:08:53	application/pdf	1
2012-06-20	10:38:59	application/pdf	1
2012-06-20	10:40:04	application/pdf	1
2012-06-21	09:17:02	application/pdf	1
2012-06-21	13:40:30	application/pdf	1

Here we have an example for documents stored in the repository no 4.

Please pay attention to the case sensitive document name and the extention to the document id in this case e.g.'\data'.

*LVALUE* contains the length information about the document.
LONG_VALUE contains the actual documents.

The content of the *LONG_VALUE* longfile byte column is sent as raw data via ODBC to the application. The application is doing the uncompression and conversion of the data.

Please note: If the compression is done correctly cannot be checked by the database team. The compression und uncompression is done on application side. The database only gets the information if a document is compressed – *COMPRESSED = 1* or not.

Missing Documents – Hints to Analyze on Database Level (1)

You cannot display a document anymore – no error message is sent
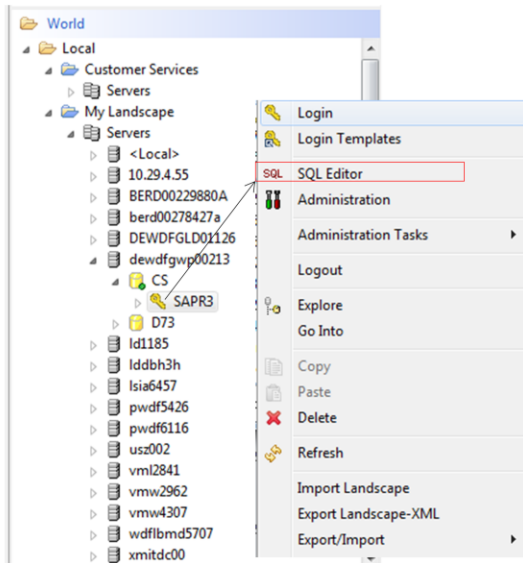
to check the availability of

documents on database level

use Database Studio logon as DBA
User SAPR3 and open an SQL Editor

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You can analyze the table contents using the Database Studio (all SAP MaxDB versions) or using the SQL Studio (for SAP MaxDB versions lower than 7.8). Since the data contents of the byte columns also belong to the data analysis, the analysis can be carried out with the specified tools only and not with the Database Manager CLI (DBMCLI) or SQLCLI.

Use SAP Note 1097311 to install the Database Studio.

Note: SAP Support can carry out the analysis remotely via an SAP DB connection (SAP Note 202344) without requiring a Database Studio to be installed in the customer system.

The customer provides the logon data for the SAP Content Server: DBM user CONTROL, DBA database user SAPR3 or SAP<SID>

Missing Documents – Hints to Analyze on Database Level (2)

You must know:

- the repository to which the document belongs to
- the document id of the ‚*missing*‘ document

NAME	LVALUE	SHORT_VALUE	LONG_VALUE
4fdd135721e84d2be10000000ab5db5d\data	192812	?	W; 5 C : l"E# o q N z ? ⧈ ⧈ F{ ⧈ }c{8 7 { v`v`v` ...
4fdd5af821e84d2be10000000ab5db5d\data	146831	?	\ %Ru D F, c Q7 1o t ⧈⧈^ ? _ + _ ~ o F F o t <...
4fdd5afd21e84d2be10000000ab5db5d\data	146831	?	= e M jj ac 4)elP* s 3 I k M K Ae P "THs } ~ } ; ggOk] :⧈ ^ u I" r } ...
4fe069ee8e184d2ce10000000ab5db5d\data	192853	?	U S v E2 &S { d <G umC S 2D IJ M B*T) H([[u s q {_y s :] 2A L ...
4fe1c3172bd44d29e10000000ab5db5d\data	192854	?	V e M I " E)B = O2d # !SfBE D "c I &S! * RQS y 8 < o o [BW_ B]& ...
4fe1c7682bd44d29e10000000ab5db5d\data	192812	?	, e M j J , L 2 y ! !dHk !SfBE 1C DEQ h2 k y y x ; { Z ;⧈ e%f ! %n ni ! ...
4fe1c76d2bd44d29e10000000ab5db5d\data	192812	?	, S & Y4 "d $C 9B kmC $D "c P d R 2) E}V w ~ w I{ u]u w J PMC #K...
4fe2009333414d29e10000000ab5db5d\data	133673	?	) e M jj ac 4)elP* s 3 I k M K Ae P "THs } ~ } ; ggOk] :⧈ ^ u I" r } ...
4fe2469433414d29e10000000ab5db5d\data	162797	?	{ }7 m Q A k M4 "$Y{ 4i. [4+*J BQ4*S P! Q"$;w ~ } = = u : w^{3 W...

Attention:
The Document ID is stored case sensitive in column *Name* !
On Database Level the *Name* has additionally to the Document ID an extention !

To start the analysis you must know the Document-ID of the document which cannot be displayd and the repository to which the document belongs to. You get the document ID from the KPRO. If you do not know the Doc-id you have to create an SAPHTTP-Trace (check SAP note 761387)

The customer tells SAP Support the document ID of the document to be analyzed and the name of the repository that contains the document.

For example:
Document ID: 4FDD135721E84D2BE
Repository: ZTEST5

Missing Documents – Hints to Analyze on Database Level (3)

- First select table CONTREP:
  ```
  Select * from CONTREP where CONTREPNAME = 'ZTEST5'
  ```
  you'll get the Number of the repository – column *CONTREPNR -> here 4*

- With CONTREPNR you know the Extention of tables
  DOCUMENTS* and COMPONENTS* -> here 0004

- Now you have to check if records with this document number exist in
  DOCUMENTS0004 (meta data of the document)
  COMPONENTS0004 (the document itself)

  ```
  Select * from DOCUMENTS0004
  where NAME like '4fdd135721e84d2be10000000ab5db5d%'

  Select * from COMPONENTS0004
  where NAME like '4fdd135721e84d2be10000000ab5db5d%'
  ```

If a document is stored on database level one record into table
DOCUMENTSxxx is inserted (administrative data) and additionally 1 up to n
records

Are stored in table COMPONENTS. The number of records in table
components depends on the size of the document.

Please note: A consistent document is if we have to each document id records
in table *DOCUMENTSxxxx* **AND** in table *COMPONENTSxxxx.*

If one entry is missing we have an inconsistent document.

Next slides only show the example for checking the document in table
COMPONENTS but of course when you check your system you must execute
the same analysis steps for the table *DOCUMENTS* as well.

Missing Documents – Hints to Analyze on Database Level (4)

NAME	LVALUE	SHORT_VALUE	LONG_VALUE					
4fdd135721e84d2be10000000ab5db5d\data	192812	?	W; 5	C : I"E # o q N z	? ▯	_	▯ F{ ▯ }c{8 7	{ v`v`v` ...

Report
Goto Row ...
Export Cell to ▸
Export Result ...
Refresh   F5
Close   Ctrl+F4
Close All Results   Ctrl+Shift+A
Copy Cells
Copy Rows   Ctrl+C
Edit
Columns...

Zoom ...
Zoom (binary) ...
File ...
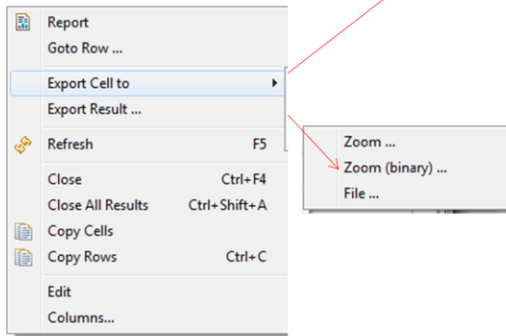
Displays the content of the long_value byte (BLOB) column which includes the document

If the record with the document-id does not exist on database level the select command gets the error code *100 Row not found.*

Getting a result you can go to the next step and check the content of the Column *LONG_VALUE.*

Mark the Column -> chose *export Cell to -> Zoom (binary)*

Missing Documents – Hints to Analyze on Database Level (5)

NAME	LVALUE	SHORT_VALUE	LONG_VALUE
4fdd135721e84d2be10000000ab5db5d\data	192812	?	W; 5 C : l"E# o q N z ? 0 _ 0 F{ 0 }c{8 7 { v`v`v` …
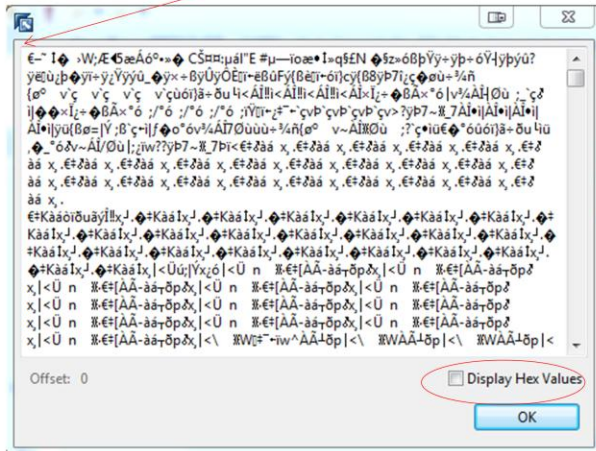
Note: You can only list the content of columns with type Byte using the Database Studio. DBMCLI sql_execute or SQLCLI are not able to display contents of blobs.

The *ZOOM BINARY* can take some seconds it depends on the amount of raw data stored in the Blob.
To get usefull information about the content you should display the HEX VALUE.

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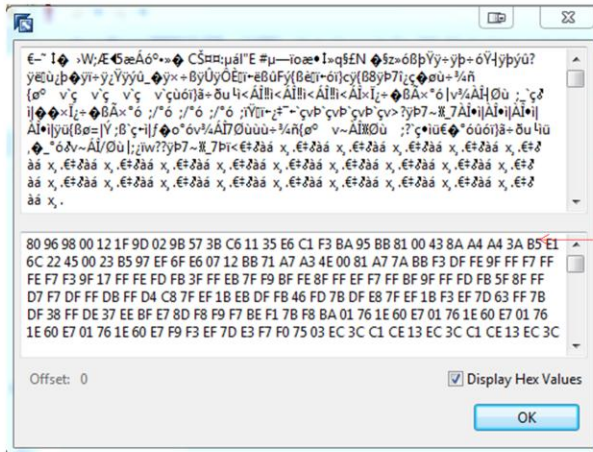
If the hex values are valid data cannot be decided by the database support team. The database only stores the delivered raw data but does not have any semantic knowledge about the data.

The hex values displayed in this screen have to be marked and copied into a file and delivered the Content Server application colleagues to analyze if this is the valid data. -> BC-SRV-KPR-CS

If no data is displayed here – the actual document is not stored on the database even if an entry of the document id exists in the Components table.

Please notice: you have to take care that you are checking the document id in the correct tables which are related to the repository.
If you do a mistake during check of table content of CONTREP by using the wrong repository number (CONTREPNR) you won't find your document either.
The right table name of COMPONENTS and DOCUMENTS is related to the repository number.

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Heterogenous System Copy

- Use the same loadercli executable to export and import
- loadercli exports and imports **raw data**

Note: 962019 - System Copy of SAP MaxDB Content Server Database

Note: 1770207 - Export and import of a table with parallel processes

loadercli exports and imports **raw data** there is neither conversion of data necessary on database level nor a conversion done on database level
Neither during export nor during import

Note 962019 describes the heterogenous system copy process. You can export and import a total SAP Content Server database (all catalog information (user/Table definition) and all table contents which belong to the user SAPR3) with EXPORT USER command.

If you have several repositories in your content server database you can Export and import the repositories in parallel if you use instead of EXPORT USER several EXPORT TABLE commands.

If you have very large Content server databases you can even split the export of the tables to enlarge the parallelism of Export and Import. You then should use note 1770207.

If documents cannot be displayed anymore after a system copy this is mostly an issue on the content server application side –
In these cases you can use the steps in this chapter to check the existence of

documents and their raw data

Agenda

SAP

Product Availability Matrix (PAM) (1)

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Basically, each new SAP content server version can replace a lower version. You can download the patches from the SAP Software Distribution Center (SWDC). Lower applications (such as R/3 4.6c) can use higher versions of the SAP content server (such as SAP Content Server 6.40).

We have already learned that the SAP Content Server component consists of a content server for storage document contents and a corresponding cache server. The document contents can be stored in an SAP Max DB database or in the file system. If the document contents are to be stored in the file system only, you did not have installed a SAP Max DB.

Now we are talking about where to find the MaxDB Database Software if e.g. a database upgrade to a newer Patch-Level is requested or if the

Content Server has to be copied to new hardware.
In the Product Availability Matrix (PAM), you can find information about which operating system, are released for which SAP content server versions and which SAP MaxDB versions are released in the SAP content server environment.

https://service.sap.com/patches
-> A - Z Index
-> Support Packages and Patches - N
-> SAP NETWEAVER
-> SAP NetWeaver <version>

-> Entry by Component

-> Content Server

-> <OS-Platform>

-> MaxDB

By the way here you'll find the Patches of the Content Server application only. Database Patches cannot be found here.

To get the information which SAP MaxDB version is available for your Content Server you go to

Product Availability, Maintenance Dates & Supported Platforms.

Product Availability Matrix (PAM) (2)

SAP NETWEAVER 7.4   x

| General Information | Technical Release Information | SAP Software Download Center | System Data |

Details & Dates   Related Product Versions   Support Package Stacks

Details for Product Version SAP NETWEAVER 7.4

Official Name:	SAP NetWeaver 7.4
Product:	SAP NETWEAVER
Type of Product Version:	Standalone
Release Type:	Standard
Current Status:	Unrestricted available

Release Plan

Beta Shipment:	12/14/2012
Release to Customer:	05/10/2013
General Availability:	05/10/2013
End of Mainstream Maintenance:	12/31/2020 Additional Information

Essentials

SAP NetWeaver 7.4 PAM (PDF)
↗ Open in New Window

SAP NetWeaver 7.4 Planning Product
Availability Matrix (Planning PAM)
with all EHPs

Related Links

↗ Installation / Upgrade Guide
↗ SAP Help Portal
↗ Web Browser Information
↗ SAP Community Network

Other Versions of Product

SAP EHP1 FOR SAP NETWEAVER 7.3
SAP enhancement package 1 for SAP NetWeaver 7.3

SAP EHP3 FOR SAP NETWEAVER 7.0
SAP enhancement package 3 for SAP NetWeaver 7.0

SAP NETWEAVER 7.3
SAP NetWeaver 7.3

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Chose Technical Release Information

Product Availability Matrix (PAM) (3)

SAP NETWEAVER 7.4

Copy link ☆

| General Information | Technical ...ase Information | SAP Software Download Center | System Data |

Overview Languages Database Platforms Operating Systems JSE Platforms Web Browser Platforms Web Servers IDE Platforms

The following table shows an overview of the product instances and categories for which release information is available.
Choose a product instance and a category to display the detailed view of the release information.

Index ▲	Product Instance	Languages	Database Platforms	Operating Systems	JSE Platforms	Web Browser Platforms	Web Servers	IDE Platforms
1	Application Server ABAP ABAP	Details (159)	Details (428)			Details (131)		
2	Business Intelligence ABAP	Details (29)	Details (428)					
3	BI Content Extension BI Content	Details (29)	Details (428)					
4	SAP LiveCache	Details (4)		Details (19)				
5	Application Server Java Java 2 Enterprise Edition	Details (12)	Details (114)		Details (18)	Details (98)		
6	Adobe Document Services Java 2 Enterprise Edition	Details (1)	Details (87)		Details (11)	Details (34)		
7	PDF Export Java 2 Enterprise		Details (87)		Details (11)			

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Chose Database Platforms

Product Availability Matrix (PAM) (4)

SAP NETWEAVER 7.4

Copy link

General Information | Technical Release Information | SAP Software Download Center | System Data

Overview Languages **Database Platforms** Operating Systems JSE Platforms Web Browser Platforms Web Servers IDE Platforms

Filters

Product Instance

Content Server

Reset Filters

▾ Database

- MAXDB (18)
- MAXDB 64-BIT (80)
- SAP DB OLTP (25)
- SAP DB OLTP 64-BIT (33)

▸ Operating System

< Content Server 156 Entries   Export as CSV

Database Version	Operating System	Scope	Status	Valid from	Additional Information
MAXDB 7.8 64-BIT maintained until see: Details	HP-UX 11.xx/IA64 maintained until 12/31/2015 Details	SAP CONTENT SERVER 6.40 maintained until 12/31/2020	🟩	12/10/2013	Display (1)
MAXDB 7.8 64-BIT maintained until see: Details	HP-UX 11.23/IA64 64BIT maintained until 12/31/2015 Details	SAP CONTENT SERVER 6.40 maintained until 12/31/2020	🟩	12/10/2013	Display (1)
MAXDB 7.8 64-BIT maintained until see: Details	SOLARIS/SPARC 10 maintained until 01/31/2018 Details	SAP CONTENT SERVER 6.40 maintained until 12/31/2020	🟩	12/10/2013	Display (1)
MAXDB 7.8 64-BIT maintained until see: Details	SOLARIS/X64 10 maintained until 01/31/2018 Details	SAP CONTENT SERVER 6.40 maintained until 12/31/2020	🟩	12/10/2013	Display (1)
MAXDB 7.8 64-BIT maintained until see: Details	LINUX SUSE SLES10/IA64 64BIT maintained until 07/31/2013 Details	SAP CONTENT SERVER 6.40 maintained until 12/31/2020	🟩	12/10/2013	Display (1)
MAXDB 7.8 64-BIT maintained until see: Details	LINUX SUSE SLES10/POWER 64BIT maintained until 07/31/2013 Details	SAP CONTENT SERVER 6.40 maintained until 12/31/2020	🟩	12/10/2013	Display (1)

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Insert your Product -> keyword *Content Server*

All relased MaxDB Versions and the related platform which are delivered for Content Server are listed here.

Note 1556824 will explain as well where to find this release information.

Please notice if you do not find a database version listed here this means that this version combination is not released for SAP Content Server.

Unfortunately you cannot directly download the Patches from this area of PAM.

SAP MaxDB Software Patch Download
http://service.sap.com/pam

SAP MAXDB

>= Version 7.5

Version 7.3 only

SAP Note 1672252 "SAP MaxDB Software Download (SWDC)". This SAP Note describes where to find the SAP MaxDB software.

SAP Note 735598 describes how to install a SAP MaxDB software Patch.

Agenda

SAP

Further Information to SAP Kpro

Installation Guides

- Installation/Upgrade Guides>New Dimension Products>Knowledge Warehouse

Knowledge Provider Documentation

- http://help.sap.com/saphelp_spm21_bw/helpdata/en/f9/cdfa3882cd8229e10000000a11402f/frameset.htm

Important SAP Notes

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

Further Information to SAP Content Server

Important SAP Notes

- 329473   Description of the file ContentServer.INI
- 586895   SAP Content Server for UNIX (composite SAP note)
- 1619726   FAQ: SAP MaxDB Content Server
- 319332   Content Server backup strategies
- 761387   Support information for the SAP Content Server
- 962019 - System Copy of SAP MaxDB Content Server Database
- 1770207 - Export and import of a table with parallel processes

Questions

SAP® MaxDB™ Content Server – Architecture

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

SAP® MaxDB ™ Features
Session 1: Low TCO with the SAP MaxDB Database
Session 6: New Features in SAP MaxDB Version 7.7
Session 8: New Features in SAP MaxDB Version 7.8

SAP® MaxDB ™ Administration
Session 2: Basic Administration with Database Studio
Session 3: CCMS Integration into the SAP System
Session 11: SAP MaxDB Backup and Recovery
Session 13: Third-Party Backup Tools
Session 19: SAP MaxDB Kernel Parameter Handling

SAP® MaxDB ™ Problem Analysis
Session 5: SAP MaxDB Data Integrity
Session 14: SAP MaxDB Tracing
Session 12: Analysis of SQL Locking Situations

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/

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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 17: SAP MaxDB Shadow Page Algorithm	Session 16: SAP MaxDB SQL Query Optimization (Part 1)	
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/

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Thank You!
Bye, Bye – And Remember Next Session

Feedback and further information:
http://www.scn.sap.com/irj/sdn/maxdb

Next Session: March, 11, 2013
SAP MaxDB & Content Server: Housekeeping Activities

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Thank you

Contact information:

Oksana.Alekseious@sap.com, Christiane.Hienger@sap.com