

# LCM263

## Managing MaxDB with Database Studio

Version 7.7

Suitable for SAP and non-SAP environments

THE BEST-RUN BUSINESSES RUN SAP™ 



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## Introduction



## MaxDB is SAP's database offering

- Part of the SAP Technology Portfolio
- Supports all SAP applications
- Part of the SAP NetWeaver Platform and Development Workbench
- Application, platform and DBMS from one vendor

## MaxDB

- Competitive feature set and performance level
- Easy administration and minimal cost of ownership
- Focused on the requirements of SAP customers and SAP applications
- Ongoing SAP investment into the development of MaxDB
- Low end license and maintenance fees
- Strategic and safe alternative

## History of MaxDB



1977-1997	Technical University of Berlin, Nixdorf Computer AG, Siemens-Nixdorf Informationssysteme AG, Software AG
1993	DBMS for SAP R/3
1997	Acquisition by SAP AG
2003	Rebranding to MaxDB

15 years of experience in the SAP database scenario

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The roots of the database are found in the late seventies at the Technical University of Berlin.

Nixdorf Computer AG stated the potential of this development and moved it to its portfolio.

The database was bundled to several computer lines of Nixdorf and sold about 2000 installations during that era.

In 1989 the database development team was taken into an own subsidiary and Nixdorf was taken over by Siemens.

Since Siemens already had their own relational database systems in their portfolio, as a first step the software license was offered to and taken by Software AG.



## The invisible DBMS

- Mobile clients / Laptop
- Workstations / PC
- Embedded DBMS

## Template-based installation & configuration

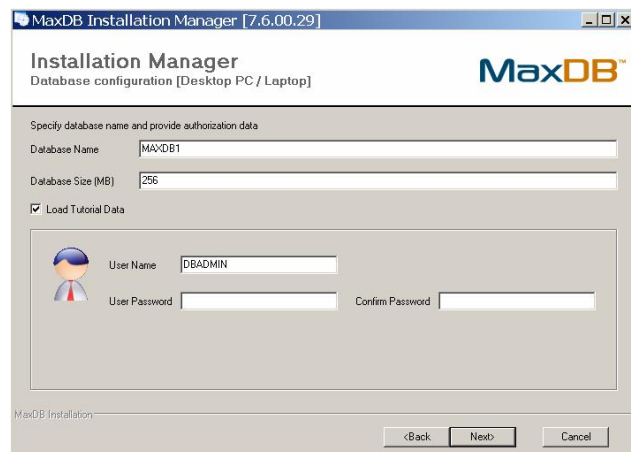
- Silent mode
- Template selection
- Optional demo data

## Automatic operations

- Restart, shutdown
- Backup, recovery
- Database extension

## GUI

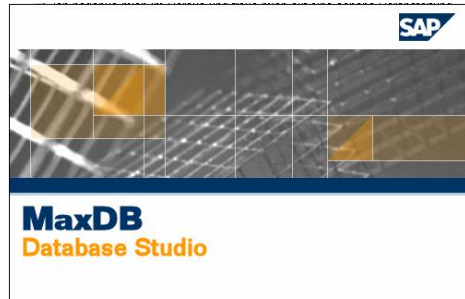
- Platform-independent





## Integrated, ECLIPSE-based Tool-Platform

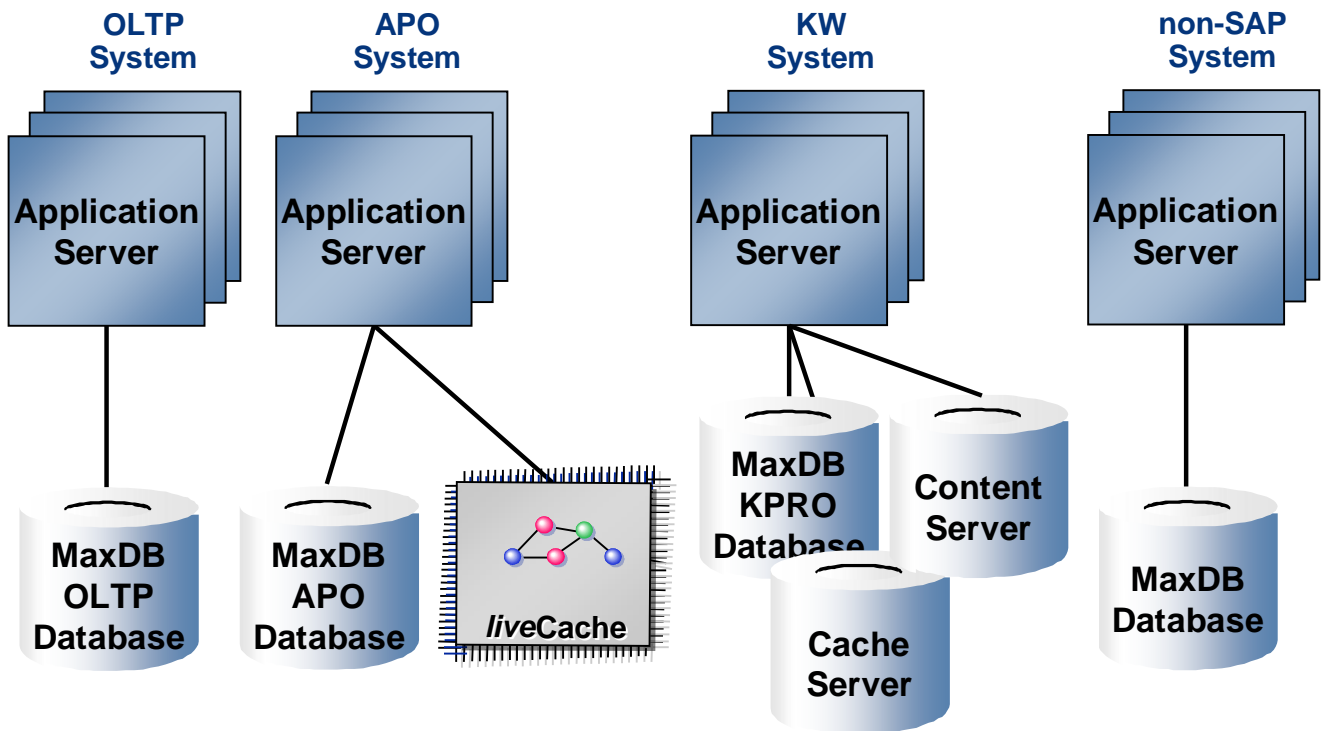
- Platform independent
- Plug-ins for
  - Landscape management
    - User
    - Repositories
  - Database management
  - SQL-Queries, Reporting
  - Loader
  - Synchronization Manager
  - DBAnalyzer



## Managing MaxDB



# MaxDB in Your System Landscape



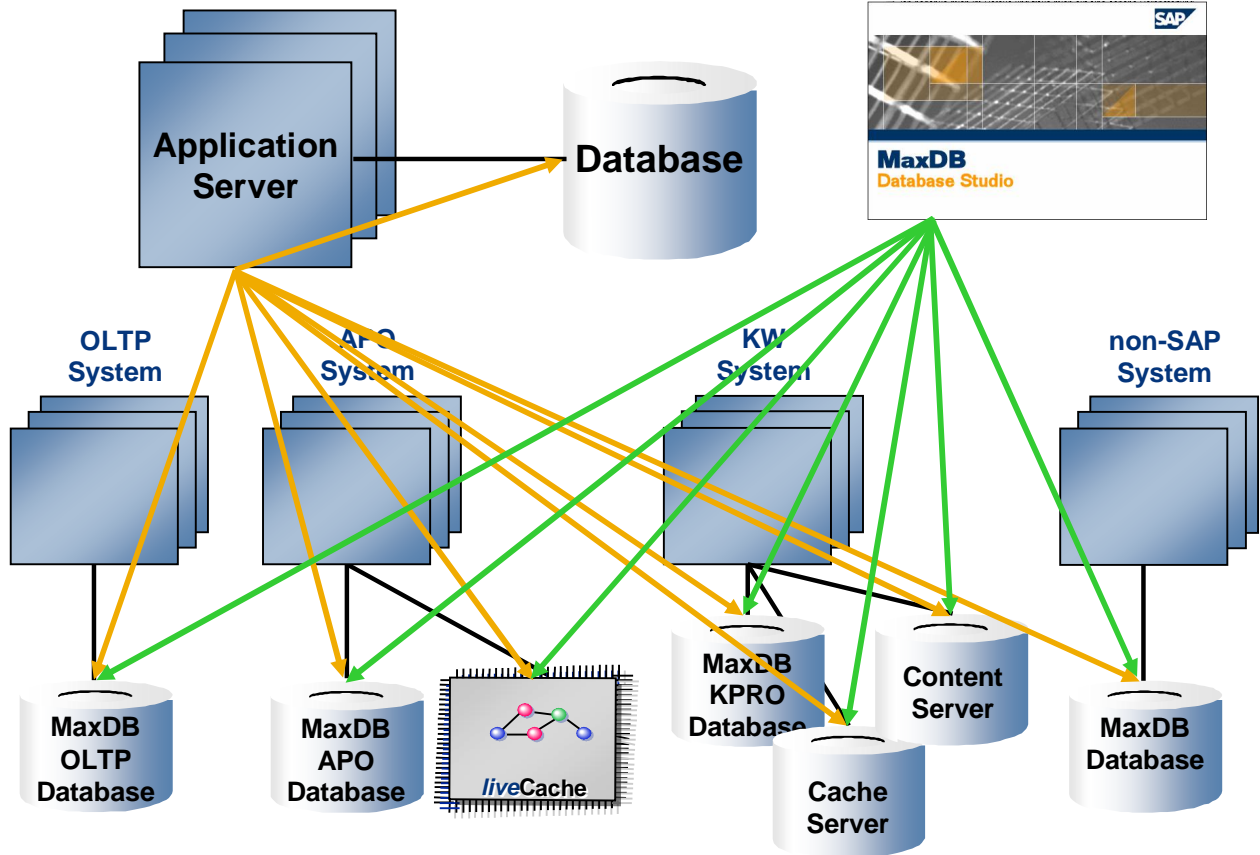
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Your system landscape can contain several SAP systems and non-SAP systems.

All of them might run with MaxDB.

For some applications a MaxDB database is necessary – e.g. SAP SCM (MaxDB as a liveCache) or Knowledge Management (MaxDB as the Content and Cache Server).

# Central Monitoring

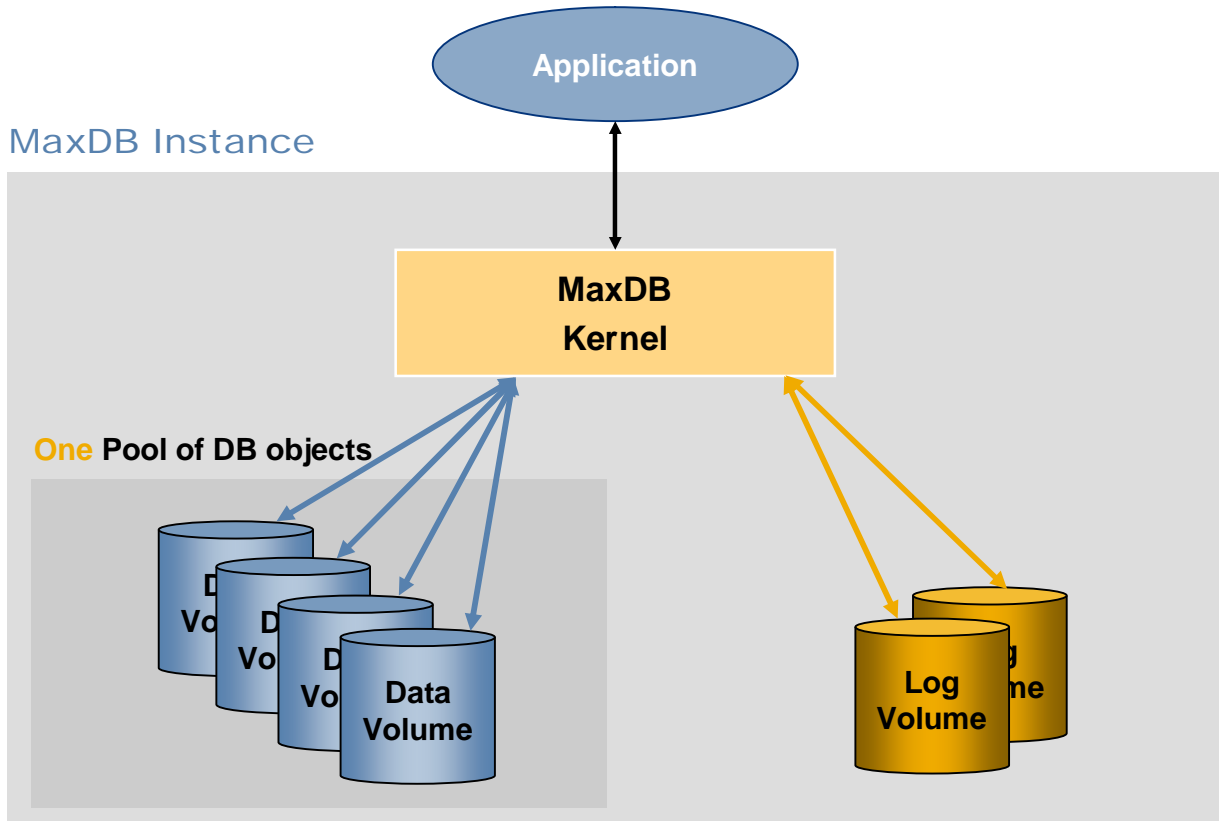


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You can monitor all MaxDB instances of your system landscape using one central monitoring system. This could be e.g. a Solution Manager system.

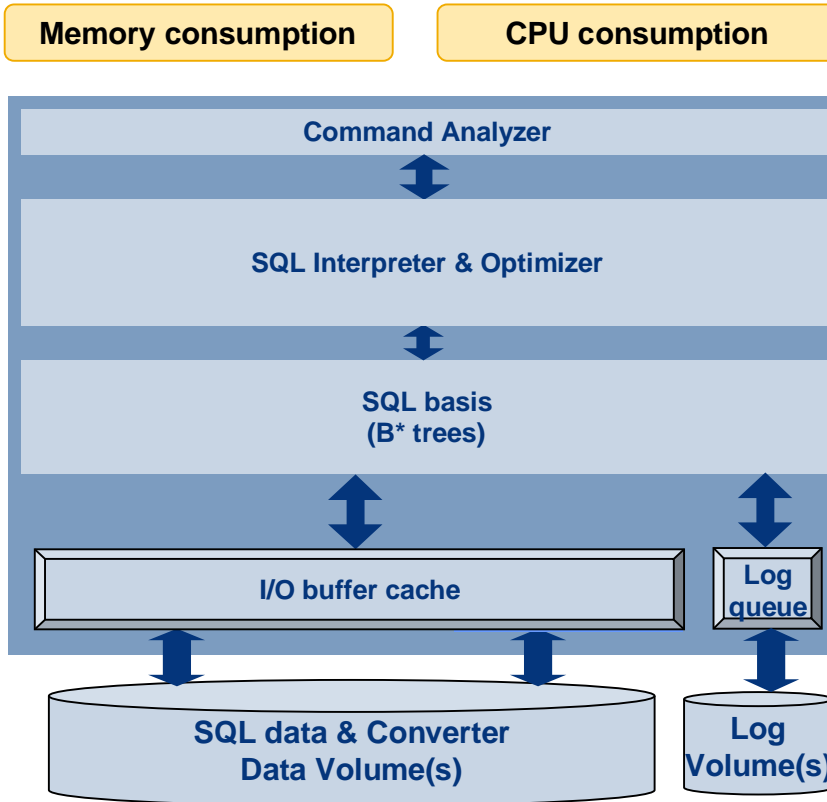
This system may run on MaxDB but monitoring transaction DB59 is also available on systems running on a different database system.

Another possibility to administer and monitor all MaxDB instances of your system landscape is to use the new tool Database Studio.



MaxDB uses several data volumes as one data area – just one large pool of database objects. You don't need to take care of single table spaces but to monitor just the filling level of the complete data area.

The same is true for the log volumes – several data volumes are used as one log area.



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When you are monitoring a MaxDB instance, you need to have a look at the following areas:

- Memory and CPU consumption
- Expensive / long running SQL statements
- Task activities
- Critical regions
- Cache usage / hit rate and physical I/O
- Database log files

Database Studio provides possibilities to check these areas.

Database Analyzer also collects data about these monitoring relevant topics. This data can then be viewed in Database Studio.

## Next Steps ...



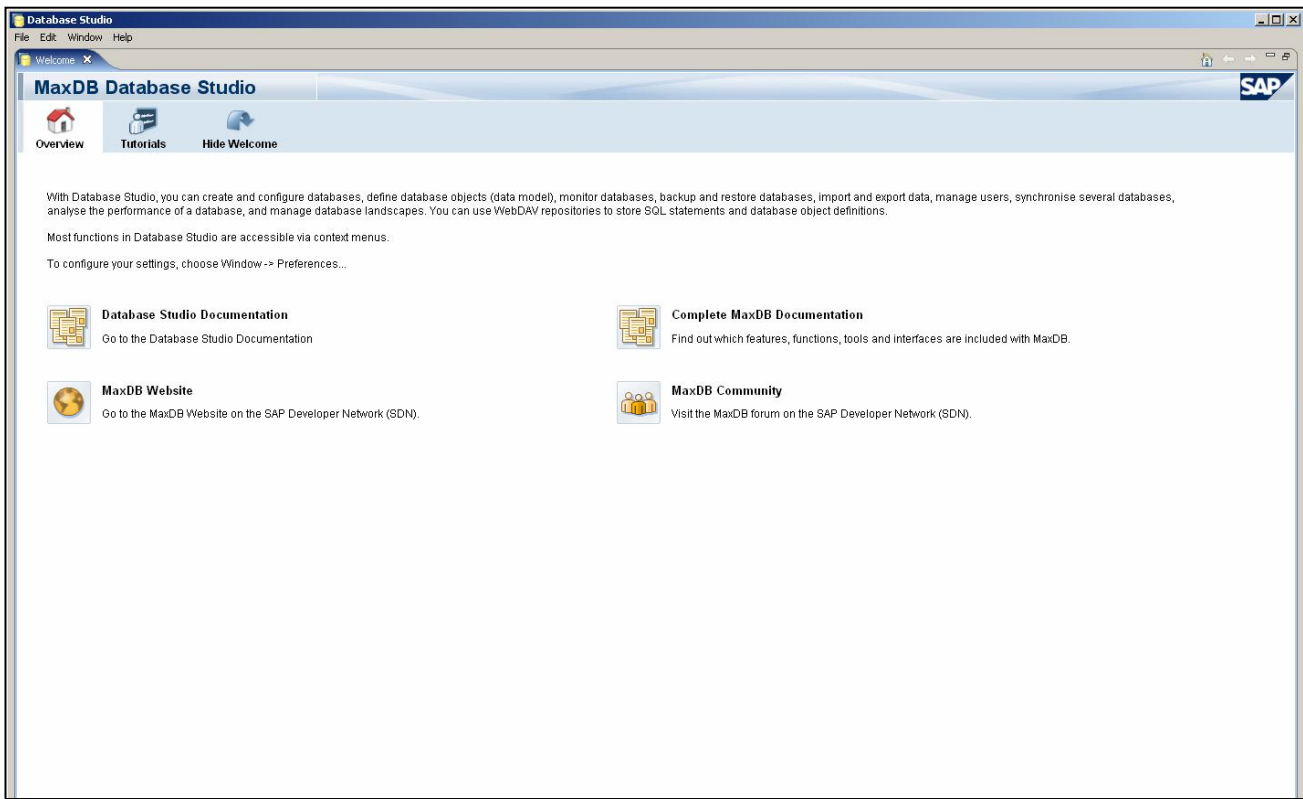
- The following slides are to be used as a reference book – they contain screenshots of the tools and additional information.

## Managing MaxDB with Database Studio

Attention please:

If you want to use Database Studio for administering a MaxDB version older than 7.7, please be aware to install Database Studio on a separate computer and run administration remotely until further notice.

# Database Studio – Welcome Page



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Database Studio is SAP's new tool for managing MaxDB databases.

As of MaxDB version 7.7, Database Studio replaces the Database Manager GUI, SQL Studio and Synchronization Manager tools. It also provides new functions, such as a graphical user interface for the Loader tool.

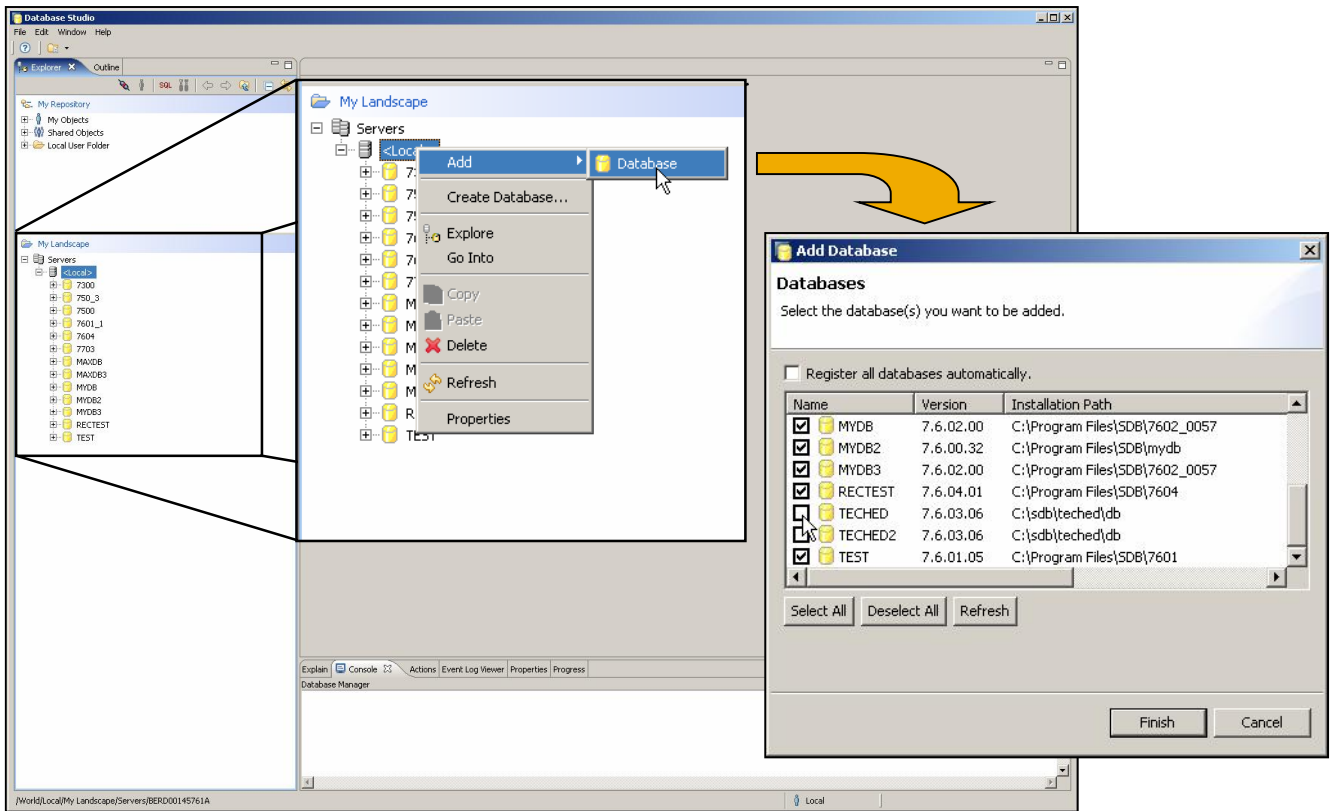
With Database Studio, you can create and configure databases, define database objects (data model), monitor databases, backup and restore databases, import and export data, and much more.

Database Studio is platform independent – it can run on UNIX/Linux as well as on Windows.

The Database Studio Welcome Page provides access to the MaxDB website and the MaxDB documentation.



# Add a Database



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The context menu (right mouse click on an item) is essential to use the Database Studio.

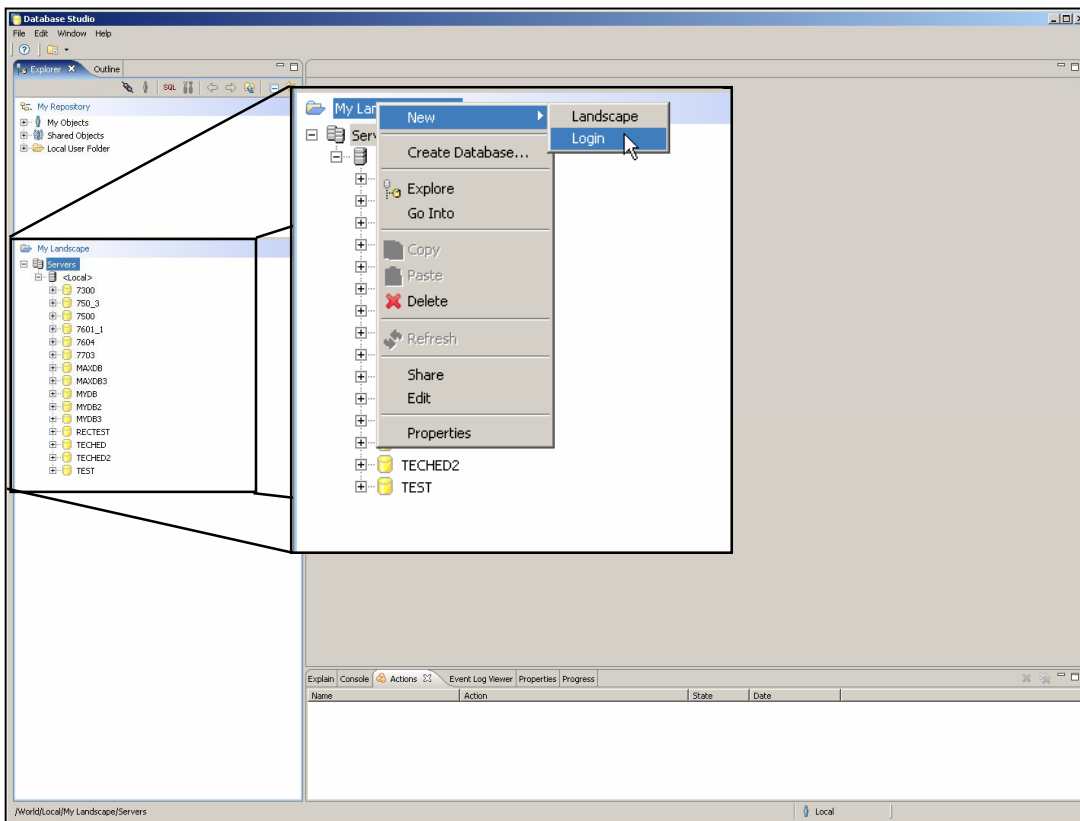
The options in the context menu depend on the item on which it was opened.

A right mouse click on *Servers* allows to register a new database server to Database Studio, the context menu on a server name allows to register databases which are installed on this server.

In the list of databases you can select which should be added to the Database Studio.

MaxDB databases as of version 7.5 can be administered with Database Studio. As of MaxDB version 7.7 Database Studio is required for managing databases.

Database Studio, DBMGUI und SQLStudio can be installed on the same server.

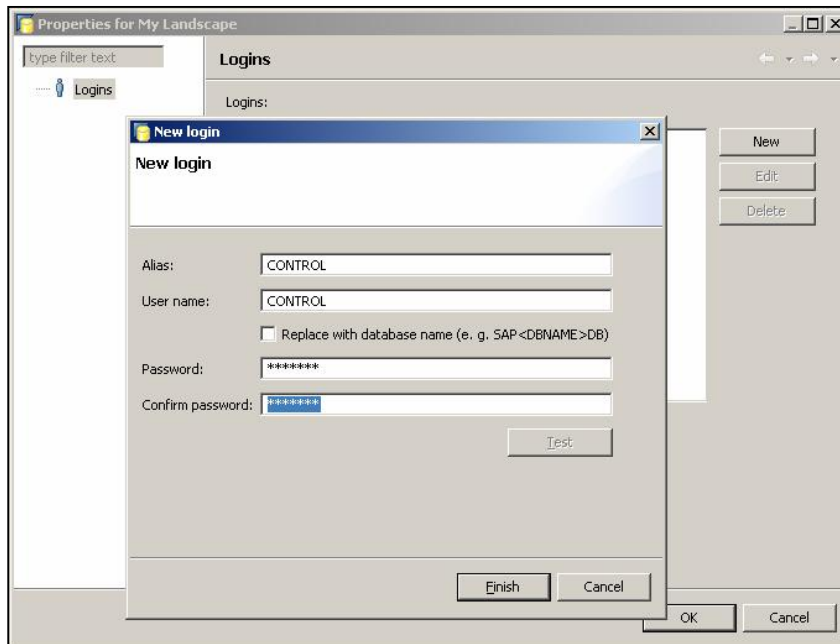


Specify at least one user and password for database connections.

You can either add the login information to each single database or (if several databases use the same user information) you can specify global logins per landscape.

In this example the context menu on *My Landscape* was opened to create a new entry in the global user management.

# Create Login



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The global user management allows to create login entries which can then be used to login to different databases.

Enter a valid user name and a valid password to be able to logon to a specific database.

# Add a Login to a Database Instance



The screenshot illustrates the process of adding a login to a database instance in SAP MaxDB Administration. It shows three main components:

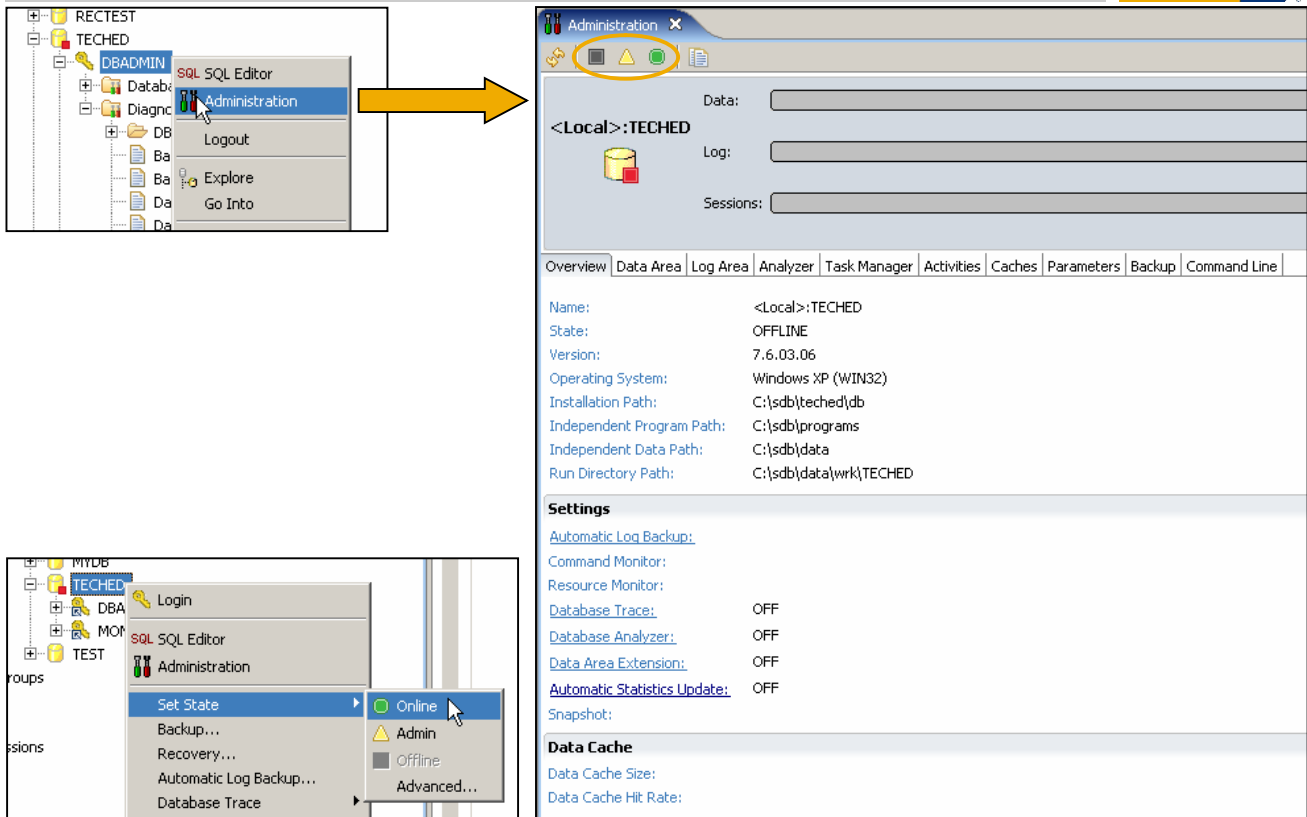
- Servers Tree:** A tree view on the left showing a list of servers under '<Local>'. The 'TECHED' server is selected, and a context menu is open with 'Login' highlighted.
- Add login dialog:** A dialog box titled 'Add login' with a list of login names. 'DBADMIN' is checked, and 'CONTROL' and 'DBM' are unchecked. Buttons for 'Select All', 'Deselect All', and 'New' are visible.
- New login dialog:** A dialog box titled 'New login' with fields for 'Alias' (MONA), 'User name' (MONA), 'Password' (\*\*\*), and 'Confirm password' (\*\*\*). A 'Test' button is present.

Yellow arrows indicate the flow: from the 'Login' menu item to the 'Add login' dialog, then to the 'New login' dialog, and finally to a smaller view of the 'Servers' tree where the 'MONA' login is now visible under the 'TECHED' server.

After you created a global login, you can add this login to a database in your landscape.

Additionally you can create new user entries, which can then only be used for the selected database instance.

# Administration



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The *Administration* window can be opened from the user's context menu.

The user needs to be a DBM operator – SQL users are not permitted to administer the database instance.

In this window you can start and stop the database, monitor it, change the configuration and create backups.

There are three possible operational states of MaxDB:

- **OFFLINE:**  
MaxDB kernel processes and caches do not exist.  
No user can use the database.
- **ADMIN:**  
The MaxDB kernel is active (processes are started, caches are initialized). Users cannot connect to the database. Only the DBM operator can connect and perform administrative tasks.
- **ONLINE:**  
The MaxDB kernel is active and ready to work. Users can connect to the database.

To start/stop the database you can either use the traffic light icons on top of the window or you choose *Set -> State* in the context menu on the database name.

# Administration – Overview



The image shows two overlapping screenshots of the SAP Administration window for a MaxDB instance named <Local>:TECHED. The left screenshot shows the instance in an OFFLINE state, while the right screenshot shows it in an ONLINE state. Both screenshots display the Overview section with various system parameters and settings.

Parameter	OFFLINE State	ONLINE State
Name	<Local>:TECHED	<Local>:TECHED
State	OFFLINE	ONLINE 23.07.2007 13:54:58
Version	7.6.03.06	7.6.03.06
Operating System	Windows XP (WIN32)	Windows XP (WIN32)
Installation Path	C:\sdb\teched\db	C:\sdb\teched\db
Independent Program Path	C:\sdb\programs	C:\sdb\programs
Independent Data Path	C:\sdb\data	C:\sdb\data
Run Directory Path	C:\sdb\data\wrk\TECHED	C:\sdb\data\wrk\TECHED
Automatic Log Backup	OFF	OFF
Command Monitor	OFF	OFF
Resource Monitor	OFF	OFF
Database Trace	OFF	OFF
Database Analyzer	OFF	OFF
Data Area Extension	OFF	ON
Automatic Statistics Update	OFF	OFF
Snapshot		UNAVAILABLE
Data Cache Size		30,72 MB
Data Cache Hit Rate		99,20 %

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The information shown in the *Administration* window depends on the database state – while the database is OFFLINE less information is available than in state ONLINE.

The filling level information can be seen in any *Administration* section.

The *Overview* section provides general information about the database installation as well as the status of several features like *Automatic Log Backup* or *Automatic Data Area Extension*.

MaxDB directories:

- The *Independent Program Path* contains programs and libraries shared by the MaxDB instances and MaxDB applications. These programs are downwards compatible. The *Independent Data Path* contains the configuration data and *run directories* of MaxDB instances. The location of these directories is specified during the first installation of MaxDB software. They exist only once on the server.
- The *Installation Path* contains the server software that depends on the database version (e.g. kernel). Several dependent directories can exist alongside each other.
- The *run directory* contains the status files of a MaxDB instance.

**Data Area Usage:**

- Data: 49%
- Log: 1%
- Sessions: 10%
- Max: 20 Used: 2 Free: 18

**Usage Summary:**

- Total Size: 74,95 MB 100,00 %
- Used Area: 37,01 MB 49,37 %
- Free Area: 37,95 MB 50,63 %

Name	Size	Type	Device/File	Used
DATA0001	25,00 MB	FILE	C:\sdb\data\TECHED\data\DI...	12,43 MB
DATA0002	25,00 MB	FILE	C:\sdb\data\TECHED\data\DI...	12,48 MB
DATA0003	25,00 MB	FILE	C:\sdb\data\TECHED\data\DI...	12,02 MB

**Data Volume Properties (DATA0004):**

- Name: DATA0004
- Size: 25 MB
- Device/File: C:\sdb\data\TECHED\data\DISK0004
- Type: FILE

**Data Area Extension Settings:**

- Automatic data area extension is currently deactivated.
- Activate automatic data area extension
- Start Options: Specify a percentage value for the filling level of the data area. When the filling level of the data area exceeds this percentage value, the system automatically adds a new data volume.
- Percentage: 70 %

In the *Data Area* section you can find information about the defined data volumes – e.g. the size, the location and the filling level of the single data volumes.

The data area can consist of several data volumes. The *Total Size* shows the sum of the sizes of all data volumes.

The data is automatically distributed to all volumes equally. Table space definitions are not necessary.

Empty data pages are reused by the database automatically. No reorganization is necessary.

In the *Data Area* section you can add a new data volume or delete an existing data volume.

The *Automatic Data Area Extension* can be activated in the *Overview* section. With this feature a new data volume is added automatically when a specific filling level of the data area is reached.

# Administration - Log Area



**Log Area Configuration Summary:**

Category	Value
Data	49
Total	74,95 MB Perm: 36,84 MB Temp: 0,09 MB Used: 37,01 MB Free: 37,95 MB
Log	1
Total	30,59 MB Used: 0,36 MB Free: 30,23 MB
Sessions	10
Max	20 Used: 2 Free: 18

Name	Size	Type	Device/File	Reads	P
LOG001	31,25 MB	FILE	C:\sdb\data\TECHED\log\DIS...	7	

**LOG Volume Dialog (LOG002):**

- Name: LOG002
- Size: 31 MB
- Device/File: C:\sdb\data\TECHED\log\DISK1002
- Type: FILE

**Automatic Log Backup Dialog:**

- Automatic log backup is currently deactivated.
- Activate automatic log backup (selected)
- Start Options: Select an existing or create a new backup template...

Name	Device/File	Device Type	Backup
<input checked="" type="checkbox"/> LOG	TECHED_LOG	FILE	AUTOLC
<input type="checkbox"/> LOG1	TECHED_LOG1	FILE	LOG

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In the *Log Area* section you find detailed information about the log area. The log area can consist of several log volumes - however they are used as one single log area.

You can also change the log settings and add new log volumes.

The *Log Segment Size* determines how large the log backups are created by the *Automatic Log Backup*.

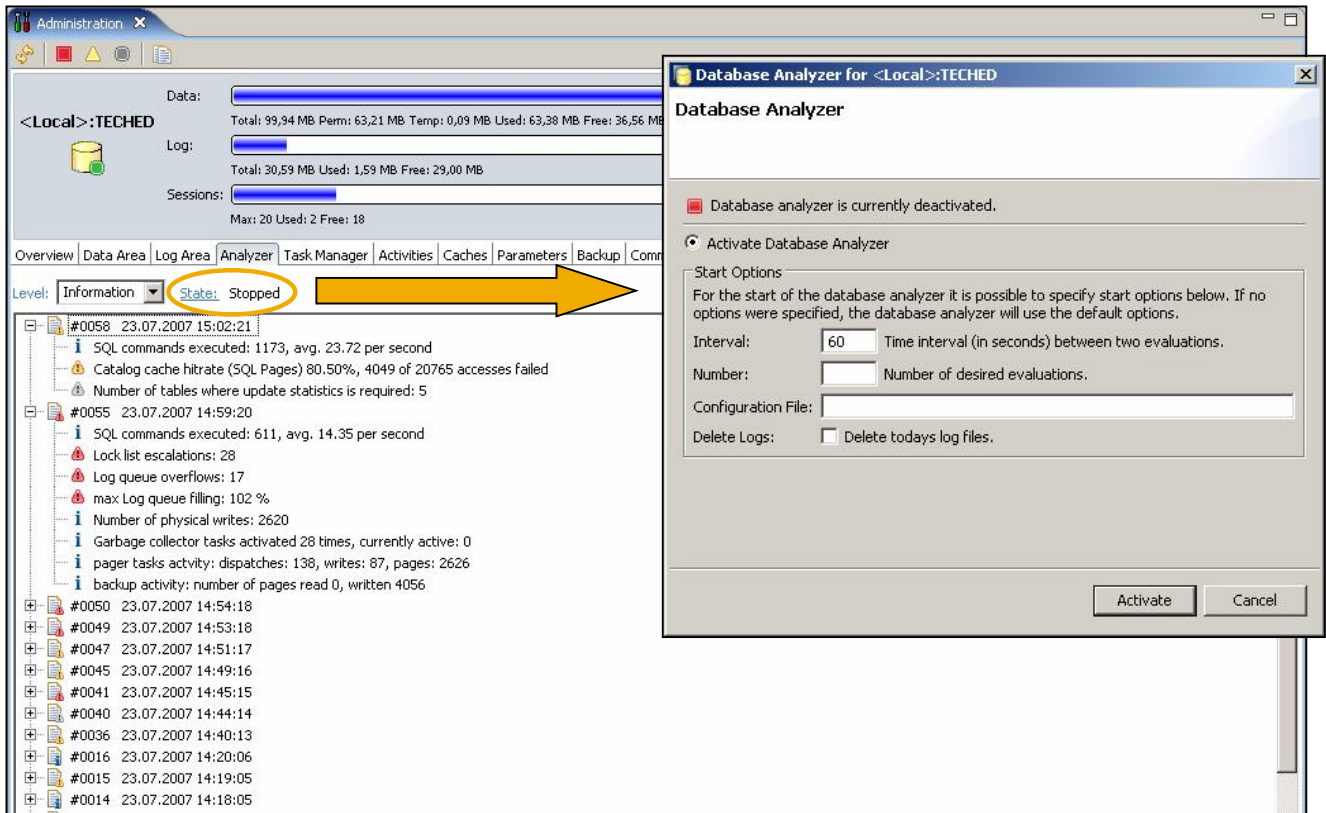
Whenever *Log Segment Size* log pages are written, they are copied to the log backup file and the pages in the log volume can be overwritten.

For test or demo systems it is possible to activate an *Overwrite Mode* for the log volumes - then you don't have to take log backups before the information on the log volume can be overwritten.

It is also possible to switch off the writing of log information.

Both of these possibilities are not recommended for productive systems as you won't be able to restore the database to the latest state.





The *Database Analyzer* is a rule-based expert system for performance analysis. It collects statistical and monitoring data as well as system messages. It detects and reports e.g.

- Low cache hit ratio
- High I/O load
- Low hit ratio of DML commands (SELECT, UPDATE, DELETE)

The Database Analyzer rates the information and bottlenecks:

- I: General information, such as the number of executed commands
- W1 to W3: Bottleneck warnings with low, medium, and high priority

The log files of each day are stored in a separate directory where you can analyze them later on.

For a short time analysis the interval should be set to 60 - 120 seconds. For long time monitoring it should be set to 900 seconds.

# Administration - Backup History



The screenshot shows the Administration console interface. At the top, there are progress bars for Data (69,52%), Log (16,11%), and Sessions (20,00%). Below these are tabs for Overview, Data Area, Log Area, Analyzer, Task Manager, Activities, Caches, Parameters, Backup, and Command Line. The Backup tab is active, showing a table of backup history.

Label	Backup Type	Action	Start	Result	Medium	Size	Devices	Next ...	From...	To P...
LOG_000000011	LOG	SAVE WARM	23.07.2007 14:58:40	OK	LOG	1352	1		43156	44494
LOG_000000010	LOG	SAVE WARM	23.07.2007 14:58:36	OK	LOG	1352	1		41616	43155
LOG_000000009	LOG	SAVE WARM	23.07.2007 14:58:30	OK	LOG	1352	1		11881	41815
DAT_000000003	COMPLETE DATA	SAVE WARM	23.07.2007 14:09:29	OK	COM3	4736	1	11961		
LOG_000000008	LOG	SAVE WARM	20.07.2007 09:08:47	OK	LOG	1256	1		10612	11880
LOG_000000007	LOG	SAVE WARM	20.07.2007 09:08:44	OK	LOG	1352	1		9243	10611
LOG_000000006	LOG	SAVE WARM	20.07.2007 09:08:42	OK	LOG	1352	1		7849	9242
LOG_000000005	LOG	SAVE WARM	20.07.2007 09:06:19	OK	LOG	1352	1		6490	7848
LOG_000000004	LOG	SAVE WARM	20.07.2007 09:06:16	OK	LOG	1352	1		5119	6489
LOG_000000003	LOG	SAVE WARM	20.07.2007 09:06:15	OK	LOG	1352	1		3425	5118
DAT_000000002	COMPLETE DATA	RESTORE	19.07.2007 14:04:05	OK	COM1	4744	1	4636		
DAT_000000002	COMPLETE DATA	SAVE WARM	19.07.2007 10:01:35	OK	COM1	4744	1	4636		
LOG_000000002	LOG	SAVE WARM	19.07.2007 09:58:31	OK	LOG	1352	1		2058	3424
LOG_000000001	LOG	SAVE WARM	19.07.2007 09:58:29	OK	LOG	1352	1		0	2057
DAT_000000001	COMPLETE DATA	SAVE WARM	19.07.2007 09:55:24	OK	COM	304	1	1125		
	HISTLOST									
	HISTLOST									

Below the history table, there is a 'Details' section and a 'Templates' section. The Templates section shows a table with columns: Name, Device/File, Device Type, Backup Type, Back..., Size, Over... and buttons for New..., Edit..., Copy..., Backup..., and Recovery... A context menu is open over the 'Backup...' button.

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In the *Backup* section you'll see the *Backup History* and all *Backup Templates* (formerly called *Backup Medium*).

Detailed information about each created backup including the label and the return code are available.

Furthermore you can create new *Backup Templates* and perform a *Backup* or a *Recovery*.

You can use backup tools from other providers for backup and restore. Some of these backup tools are supported directly by the database system. With operating system scripts, you can also use all other backup tools that can process backups from pipes.

The following external backup tools are supported directly by MaxDB:

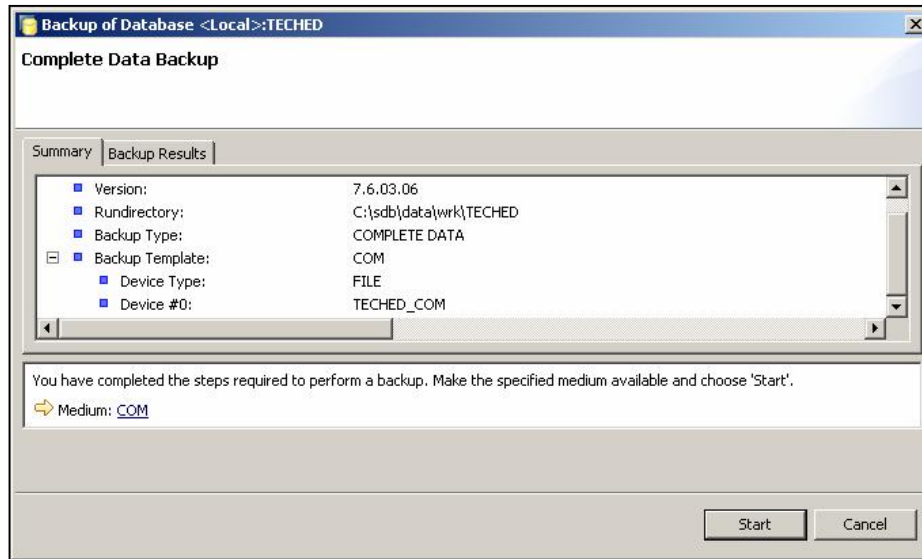
- Tivoli Storage Manager
- Networker
- NetBackup
- Tools which support the Interface BackInt for Oracle
- Tools which support the Interface BackInt for Oracle

# Administration – Backup History: Create a Backup



▼ Templates

Name	Device/File	Device Type	Backup Type	Back...	Size	Over...	
COM1	TECHED_COM1	FILE	COMPLETE DATA	New...			New...
COM3	TECHED_COM3	FILE	COMPLETE DATA	Edit...			Edit...
LOG	TECHED_LOG	FILE	AUTOLOG	Copy...			Copy...
LOG1	TECHED_LOG1	FILE	LOG	Backup...			Delete...
				Recovery...			



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Each backup template is bound to a specific backup type (complete data backup, incremental backup or log backup).

When you start the backup from the context menu on a backup template the *Backup Wizard* is automatically opened for the specific backup type and the backup will be started using the selected template.

# Administration – Create a Backup I



**Backup of Database <Local>:TECHED**

Backup

Select which type of backup do you want to perform.

Complete Data Backup  
 Incremental Data Backup  
 Log Backup  
 Deactivate Automatic Log Backup

**Complete Data Backup**

Create/select a template for backup.

Name	Device/File	Device Type	Backup Type	Back...	Size	Over..	New...
<input checked="" type="checkbox"/> COM	TECHED_COM	FILE	COMPLETE DATA				Edit...
<input type="checkbox"/> COM1	TECHED_COM1	FILE	COMPLETE DATA				Copy...
							Delete...

< Back   Next >   Start   Cancel

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Another possibility to perform a backup is to choose *Backup* from the database's context menu.

In this case you can choose what kind of a backup you would like to perform and in the next step you select or create the backup template for this action.



**Backup of Database <Local>:TECHED**

**Complete Data Backup**

Summary | Backup Results

- Version: 7.6.03
- Rundirectory: C:\sdb
- Backup Type: COMPU
- Backup Template: COM
- Device Type: FILE
- Device #0: TECHED

You have completed the steps required to perform a backup.  
 Medium: COM

**Backup of Database <Local>:TECHED**

**Complete Data Backup**

Summary | Backup Results

Label	Date	Result	Transferred	Left	Medium	Device/f
<input checked="" type="checkbox"/> DAT_000000003	23.07.2007 14:09:29	OK	37,00 MB	0,00 MB	COM3	TECHED

The backup was successfully completed.

Close

---

Explain Console Actions Event Log Viewer Properties Progress

Name	Action	State	Date
<Local>:TECHED	COMPLETE DATA BACKUP	ERROR	24.07.2007 12:22:30
<Local>:TECHED	COMPLETE DATA BACKUP	RUNNING	24.07.2007 12:22:48

The backup will be created after you confirmed the selected action.

When the backup finished, information about the backup is displayed (backup label, size, location, ...).

While the backup is running you can choose to close the *Backup Wizard* using the *Background* button. This enables you to work with the Database Studio while the backup is active.

The progress of the backup can then be seen in the *Actions* tab in the lower part of the Database Studio window.

# Administration - Database Message File



The screenshot shows the SAP Database Studio interface. On the left, the 'Diagnosis Files' folder is expanded, showing a list of files including 'Database Messages'. A context menu is open over the 'Database Messages' file, with the 'Open' option highlighted. An orange arrow points from this menu to the main window. The main window displays the contents of the 'Database Messages' file, which is a log of database messages. The log entries are numbered from 760 to 793 and include timestamps, session IDs, and message text. The current write position is marked with 'current write position'.

Line	Time	Session	Message
760:	2007-07-23 14:09:28	Ox194	53070 SAVPOINT B2OPREPARE_SVP: 35
761:	2007-07-23 14:09:28	Ox194	20008 Pager SVP(3) Start Write Data
762:	2007-07-23 14:09:29	Ox194	20009 Pager SVP(3) Stop Data IO, Pages: 2 IO: 2
763:	2007-07-23 14:09:29	Ox194	20010 Pager SVP(3) Start Write Converter
764:	2007-07-23 14:09:29	Ox194	20011 Pager SVP(3) Stop Converter IO, Pages: 8 IO: 8
765:	2007-07-23 14:09:29	Ox194	53071 SAVPOINT B2OSVP_COMPLETED: 35
766:	2007-07-23 14:09:29	OxB94	19625 IO Async I/O thread started, 'C:\sdb\data\T
767:	2007-07-23 14:09:29	OxF54	19625 IO Async I/O thread started, 'C:\sdb\data\T
768:	2007-07-23 14:09:30	OxDB4	19625 IO Async I/O thread started, 'C:\sdb\data\T
769:	2007-07-23 14:09:30	OxD80	19625 IO Async I/O thread started, 'C:\sdb\data\T
770:	2007-07-23 14:09:30	Ox194	52101 SAVE Filetype: file
771:	2007-07-23 14:09:30	Ox194	52024 SAVE 200 pages -> "TECHED_COM3"
772:	2007-07-23 14:09:34	Ox194	52024 SAVE 4728 pages -> "TECHED_COM3"
773:	2007-07-23 14:09:34	OxD80	19626 IO Async I/O thread stopped, 'TECHED_COM3'
774:	2007-07-23 14:09:34	OxB94	19626 IO Async I/O thread stopped, 'C:\sdb\data\T
775:	2007-07-23 14:09:34	OxF54	19626 IO Async I/O thread stopped, 'C:\sdb\data\T
776:	2007-07-23 14:09:34	OxDB4	19626 IO Async I/O thread stopped, 'C:\sdb\data\T
777:	2007-07-23 14:09:34	Ox130	52012 SAVE ready
778:	2007-07-23 14:09:34	Ox130	19651 CONNECT Connection released, T24
779:	2007-07-23 14:09:56	Ox130	19633 CONNECT Connect req. (T25, Node:'', PID:1332)
780:	2007-07-23 14:09:57	Ox130	19651 CONNECT Connection released, T25
781:	2007-07-23 14:10:56	Ox130	19633 CONNECT Connect req. (T26, Node:'', PID:1332)
782:	2007-07-23 14:10:56	Ox130	19651 CONNECT Connection released, T26
783:	2007-07-23 14:11:56	Ox130	19633 CONNECT Connect req. (T27, Node:'', PID:1332)
784:	2007-07-23 14:11:56	Ox130	19651 CONNECT Connection released, T27
785:	2007-07-23 14:12:56	Ox130	19633 CONNECT Connect req. (T22, Node:'', PID:1332)
786:	2007-07-23 14:12:56	Ox130	19651 CONNECT Connection released, T22
787:	2007-07-23 14:13:56	Ox130	19633 CONNECT Connect req. (T28, Node:'', PID:1332)
788:	2007-07-23 14:13:57	Ox130	19651 CONNECT Connection released, T28
789:	2007-07-23 14:14:42	Ox130	19633 CONNECT Connect req. (T31, Node:'', PID:1332)
790:	2007-07-23 14:14:42	Ox130	19651 CONNECT Connection released, T31
791:	2007-07-23 14:15:04	Ox130	19651 CONNECT Connection released, T23
792:	2007-07-23 14:15:05	Ox130	19633 CONNECT Connect req. (T30, Node:'', PID:1332)
793:	2007-07-23 14:15:05	Ox130	19651 CONNECT Connection released, T30

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A DBM operator can access the database diagnosis files in the Database Studio. All available files are listed in the tree in folder *Diagnosis Files*.

The most important log files are:

- *Database Messages* - contains status and error messages of the database kernel
- *Database Errors* - contains all error messages since database installation
- *Utility Statements* - contains administrative commands sent to the database kernel (e.g. SHUTDOWN, BACKUP, CHECK DATA) including their return code(s)
- *Backup History* - contains all backup and recovery actions
- *Database Manager Log File* - contains all (administrative) commands sent to the dbmsserver

To display a log file, choose *Open* in the context menu on the file name. A double-click on the file name does also work.

This example shows the *Database Messages* file. It consists of two parts: the first part contains information about the database start and is not overwritten. In the second part information is logged during the runtime of the database. This part is overwritten cyclically. The current write position is marked with 'current write position'.

In case of problems with the database you should always check this file for error messages.



# Administration – Utility Statement File



```
Database Messages Utility Statements x
<Local>:TECHED ONLINE Data: 63,49% Log: 5,62% Sessions: 25,00%
Show Line Numbers Search from selection Case Sensitive
134: 2007-07-23 14:09:34 46A49A780003 0013 TAP DBSTAMP2 DATE.... UNDEF
135: 2007-07-23 14:09:34 46A49A780003 0014 TAP DBSTAMP2 TIME.... UNDEF
136: 2007-07-23 14:09:34 46A49A780003 0015 TAP BD PAGE COUNT.... 4715
137: 2007-07-23 14:09:34 46A49A780003 0016 TAP TAPEDEVICES USED.. 1
138: 2007-07-23 14:09:34 46A49A780003 0017 TAP DB_IDENT..... BERD00145761A.ber.sap.corp:TECHED_20070719_095524
139: 2007-07-23 14:09:34 46A49A780003 0018 TAP MAX USED DATA PNO. 0
140: 2007-07-23 14:09:34 46A49A780003 0019 TAP CONV PAGE COUNT... 8
141: 2007-07-23 14:58:38 46A4A5FE0006 0000 ADD ADD DATA VOLUME 'C:\sdb\data\TECHED\data\DISK0004' PAGES 3200 DEVICE 4
142: 2007-07-23 14:58:40 46A4A5FE0006 0001 ADD RETURNCODE 0;ADD DATA VOLUME 'C:\sdb\data\TECHED\data\DISK0004' PAGES
143: 2007-07-24 12:22:48 46A5D2F80008 0000 SDB SAVE DATA QUICK TO 'TECHED_COM4' FILE BLOCKSIZE 8 NO CHECKPOINT MEDIANAME
144: 2007-07-24 12:22:59 46A5D2F80008 0001 SDB RETURNCODE 0;SAVE DATA QUICK TO 'TECHED_COM4' FILE BLOCKSIZE 8 NO CHE
145: 2007-07-24 12:22:59 46A5D2F80008 0002 TAP DATE..... 2007-07-24
146: 2007-07-24 12:22:59 46A5D2F80008 0003 TAP TIME..... 12:22:50
147: 2007-07-24 12:22:59 46A5D2F80008 0004 TAP SERVERDB..... TECHED
148: 2007-07-24 12:22:59 46A5D2F80008 0005 TAP SERVERNODE..... BERD00145761A.ber.sap.corp
149: 2007-07-24 12:22:59 46A5D2F80008 0006 TAP KERNEL VERSION.... Kernel 7.6.03 Build 006-123-154-261
150: 2007-07-24 12:22:59 46A5D2F80008 0007 TAP PAGES TRANSFERRED. 8128
151: 2007-07-24 12:22:59 46A5D2F80008 0008 TAP PAGES LEFT..... 0
152: 2007-07-24 12:22:59 46A5D2F80008 0009 TAP NO OF VOLUMES.... 1
153: 2007-07-24 12:22:59 46A5D2F80008 000A TAP MEDIA NAME..... COM4
154: 2007-07-24 12:22:59 46A5D2F80008 000B TAP TAPE NAME..... TECHED_COM4
155: 2007-07-24 12:22:59 46A5D2F80008 000C TAP TAPE ERRORTTEXT... UNDEF
156: 2007-07-24 12:22:59 46A5D2F80008 000D TAP TAPE LABEL..... DAT_0000000004
157: 2007-07-24 12:22:59 46A5D2F80008 000E TAP IS CONSISTENT.... TRUE
158: 2007-07-24 12:22:59 46A5D2F80008 000F TAP FIRST IO SEQUENCE. 44990
159: 2007-07-24 12:22:59 46A5D2F80008 0010 TAP LAST IO SEQUENCE.. UNDEF
160: 2007-07-24 12:22:59 46A5D2F80008 0011 TAP DBSTAMP1 DATE.... 2007-07-24
161: 2007-07-24 12:22:59 46A5D2F80008 0012 TAP DBSTAMP1 TIME.... 12:22:50
162: 2007-07-24 12:22:59 46A5D2F80008 0013 TAP DBSTAMP2 DATE.... UNDEF
163: 2007-07-24 12:22:59 46A5D2F80008 0014 TAP DBSTAMP2 TIME.... UNDEF
```

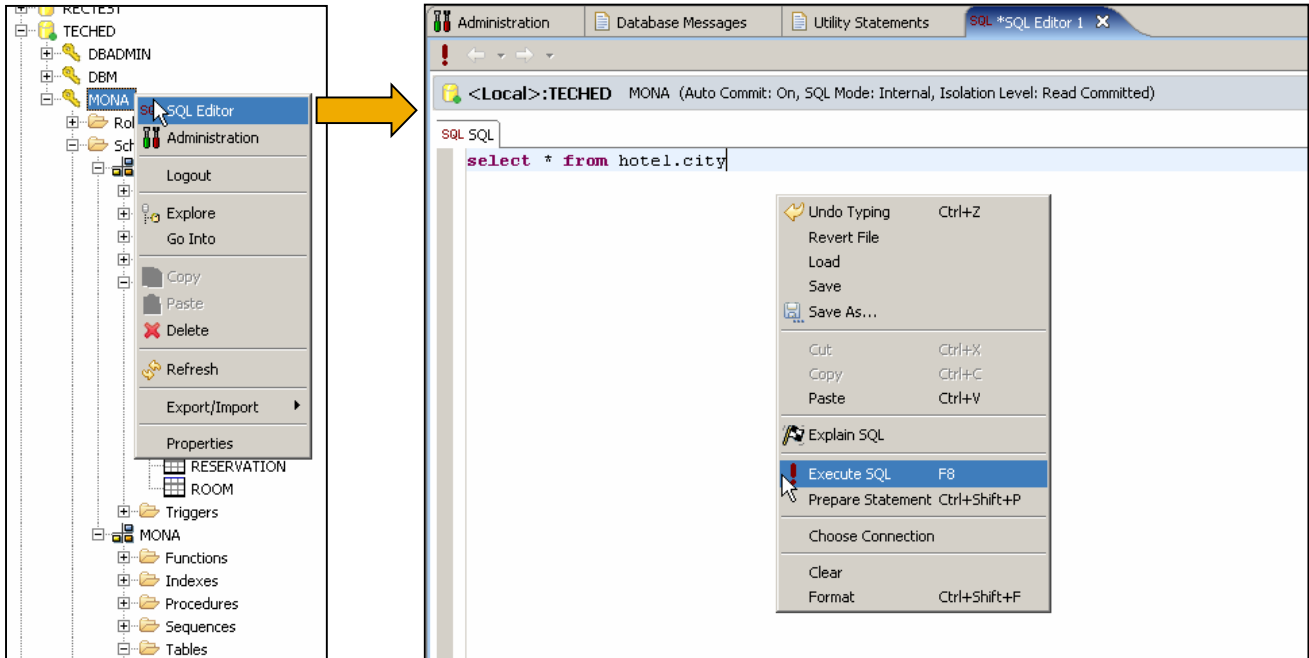
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The *Utility Statement* file contains information about all administrative tasks sent to the database kernel.

It contains information about

- backups,
- consistency checks and
- starts/stops of the database instance

including the return codes of these commands.



Choose *SQL Editor* in the context menu on the SQL user to open the *SQL Editor* window. There you can execute any SQL command – e.g. a *SELECT* statement.

When you choose *Execute SQL* the statement is executed.



# SQL – Result Window



The screenshot shows the SAP SQL Editor interface. The top bar includes 'Administration', 'Database Messages', 'Utility Statements', and 'SQL \*SQL Editor 1'. The main window displays the connection '<Local>:TECHED MONA (Auto Commit: On, SQL Mode: Internal, Isolation Level: Read Committed)'. Below this, the SQL statement 'select \* from hotel.city' is entered. The result window shows a table with 30 rows and 4 columns: ZIP, NAME, and STATE. The first row is highlighted in blue.

	ZIP	NAME	STATE
1	00618	Barranquitas	PR
2	00620	San Juan	PR
3	00622	Boqueron	PR
4	00651	San Juan	PR
5	00673	Luquillo	PR
6	00742	Quebradillas	PR
7	00752	San Antonio	PR
8	00753	San German	PR
9	00754	San Lorenzo	PR
10	00755	San Sebastian	PR
11	00757	Santa Isabel	PR
12	00765	Vieques	PR
13	00922	San Juan	PR
14	00938	San Juan	PR
15	00940	San Juan	PR
16	00950	San Juan	PR
17	00975	San Juan	PR
18	01240	Lenox	MA
19	01242	Lenox Dale	MA
20	01537	North Oxford	MA
21	01538	North Uxbridge	MA
22	01540	Oxford	MA
23	01569	Uxbridge	MA
24	01808	Middlesex Essex Gmf	MA
25	01813	Middlesex Essex Gmf	MA
26	01885	West Boxford	MA
27	01889	Middlesex Essex Gmf	MA
28	01921	Boxford	MA
29	01929	Essex	MA
30	02035	Essex	MA

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The result is shown in a second tab.

If the result set is large, not all rows are fetched at once but only the first 1000 rows. When you scroll down, the next rows are fetched.

# SQL - Explain Statement



The screenshot shows the SAP SQL Editor interface. The top bar indicates the connection is to a local database named 'TECHED' on 'MONA'. The SQL statement entered is 'select \* from hotel.city'. A context menu is open over the statement, with 'Explain SQL' selected. Below the editor, the 'Explain' console displays the execution plan for the query.

	Owner\Schemaname	Tablename	Column or Index	Strategy	Pagecount\Costvalue	
select * from hotel.city						
Table Access	HOTEL	CITY		TABLE SCAN	11	
Result		JDBC_CURSOR_61		RESULT IS NOT COPIED , COSTVALUE IS	11	

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It is also possible to view the *Execution Plan* of the SQL statement. To do so choose *Explain SQL* in the context menu of the *SQL Editor*.

In this example the data is read using a full TABLE SCAN.

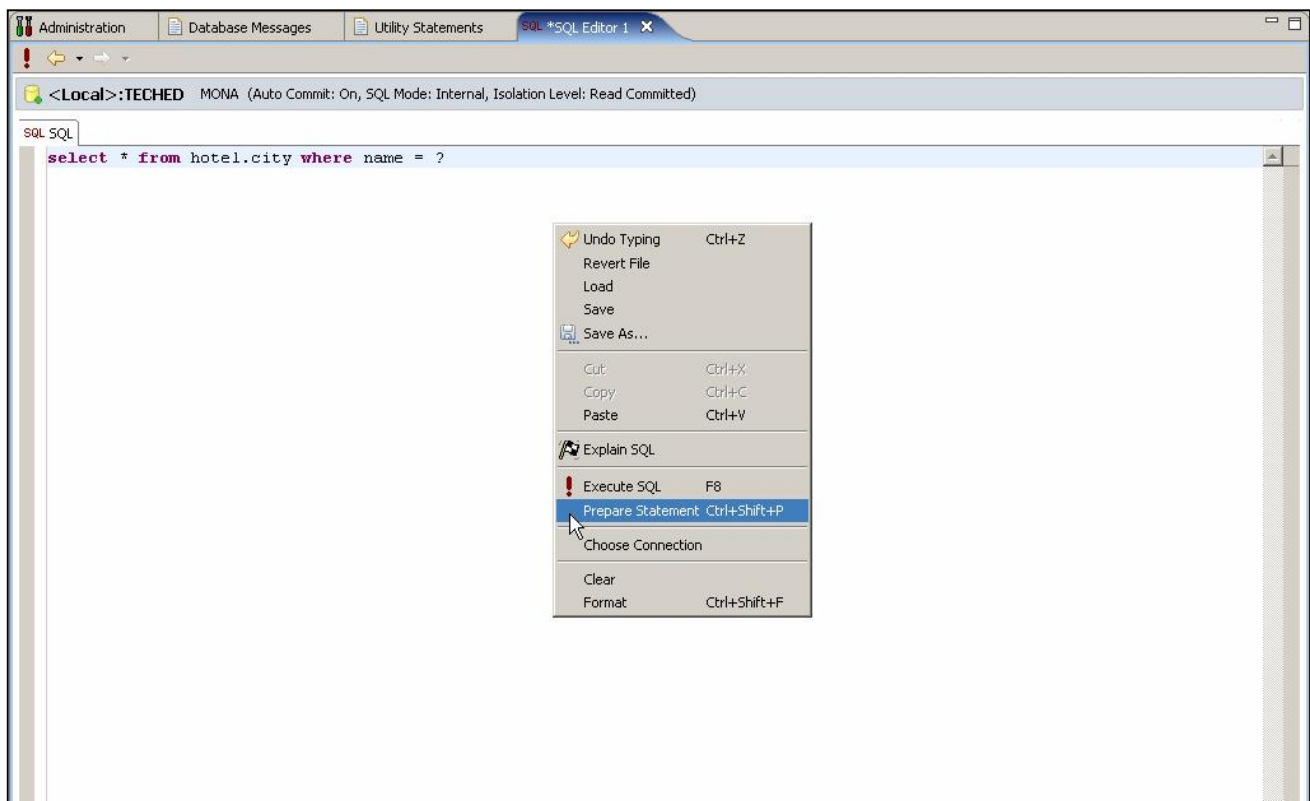
To determine the best optimizer strategy for an SQL statement analyze all tables involved.

Check

- the table definition (especially the primary key definition)
- the existing indexes and
- the optimizer statistics.

To decrease the runtime of a statement it might be necessary to update the optimizer statistics or to create a new index

# SQL - Prepare Statement I



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You can choose to prepare and execute a statement in two steps. Then you can use parameters in the SQL statement.

Instead of the parameter value enter a ? in the SQL statement and then choose *Prepare Statement*.

# SQL - Prepare Statement II



The screenshot shows the SAP SQL Editor interface. The main window displays the following SQL statement:

```
select * from hotel.city where name = ?
```

Below the editor, the execution results are shown in a table:

CHAR ASCII
San Juan

Now you can enter the parameter values and execute the statement.

# SQL - Prepare Statement III



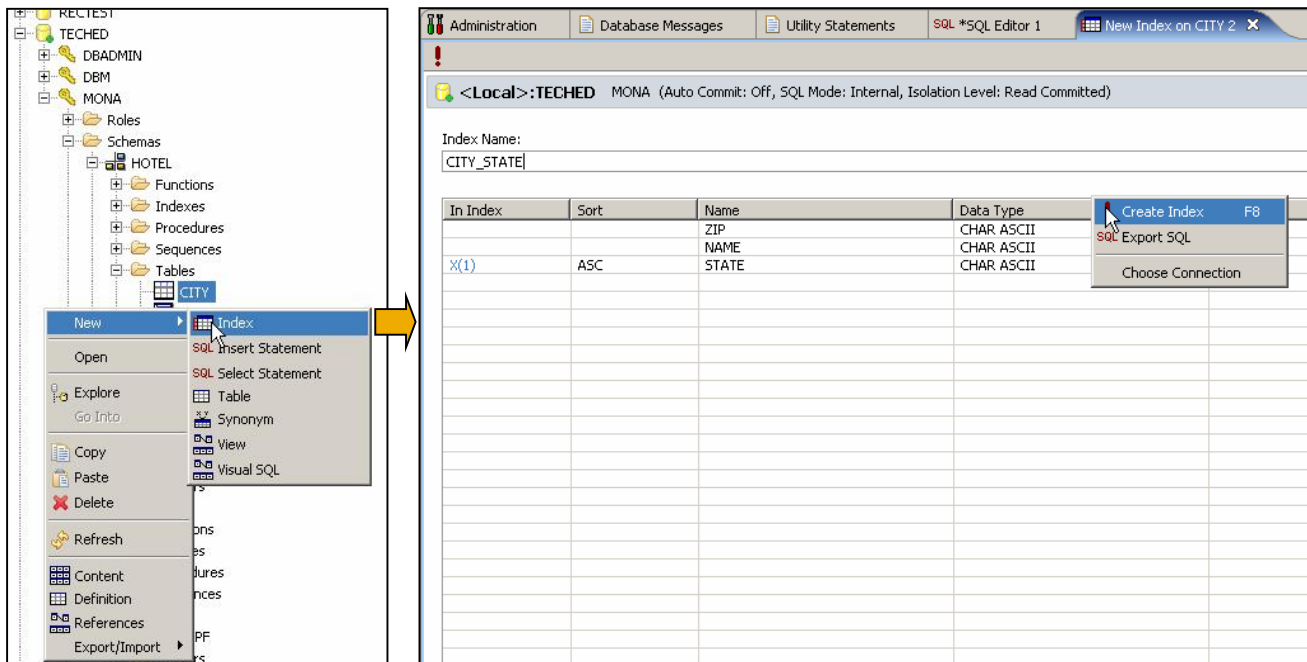
The screenshot shows the SAP SQL Editor interface. The main window displays the SQL statement: `select * from hotel.city where name = ?`. Below the editor, a table shows the results of the query. The table has four columns: ZIP, NAME, and STATE. The results are as follows:

	ZIP	NAME	STATE
1	00620	San Juan	PR
2	00651	San Juan	PR
3	00922	San Juan	PR
4	00938	San Juan	PR
5	00940	San Juan	PR
6	00950	San Juan	PR
7	00975	San Juan	PR
8	78589	San Juan	TX

On the right side of the editor, there is a 'Close' button and a preview window showing the same SQL statement. Below the preview window, the text 'CHAR ASCII | San Juan' is visible, indicating the current parameter value.

You can change the parameters and re-execute the statement with the new parameter values. The statement is then not prepared again but executed directly.

# SQL - Create an Index



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For a SQL user you can see all schemas, tables, indexes and other database objects owned by this user.

Views as well as tables can be found in folder *Tables*.

Using the context menu on a database object you can open the object definition, display the content of the object, delete or create new objects, ...

To create a new index for a table choose *New -> Index* from the context menu of this table.

You'll get a list of all columns and you can select the columns which should be part of the index.

Don't forget to specify a name for this index, before you choose *Create Index*.

# SQL - Create a View I



View Name  
CITY\_HOTEL

Check on Insert and Update  
 Replace Existing View

Comment

Field

Field	HOTEL.HOTEL.HNO	HOTEL.HOTEL.NAME	HOTEL.HOTEL.ADDRESS	HOTEL.HOTEL.INFO	HOTEL.CITY.ZIP	HOTEL.CITY.NAME
Synonym		H_NAME				C_NAME
Visible	X	X	X	X	X	X
Order						
Predicate						= 'San Juan'

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From the context menu on a table name you can also choose to create a new view on this table.

In the *View Editor* you can add other tables for a join view using drag and drop of a table from the tree into the *View Editor*.

You have to specify a name for the view.

Then you can drag and drop the columns which should be part of the view definition from the tables into the *Field* list in the lower part of the window.

When you create a join view, remember to specify alias names for the chosen columns if their name is not unique.

Furthermore you can specify qualifications (*Predicate*) for the columns.

# SQL - Create a View II



The screenshot displays the SAP Database Studio interface. On the left, the 'View Name' is 'CITY\_HOTEL'. Below it, there are checkboxes for 'Check on Insert and Update' and 'Replace Existing View'. A diagram shows two tables: 'HOTEL\_CITY' with columns ZIP, NAME, and STATE; and 'HOTEL\_HOTEL' with columns HNO, NAME, ZIP, ADDRESS, and INFO. A yellow arrow points to the 'Export SQL' option in the context menu. On the right, the SQL editor shows the following code:

```
create view
"HOTEL"."CITY_HOTEL" as
select
"HOTEL"."HOTEL"."HNO",
"HOTEL"."HOTEL"."NAME" "H_NAME",
"HOTEL"."HOTEL"."ADDRESS",
"HOTEL"."HOTEL"."INFO",
"HOTEL"."CITY"."ZIP",
"HOTEL"."CITY"."NAME" "C_NAME",
"HOTEL"."CITY"."STATE"
from
"HOTEL"."CITY",
"HOTEL"."HOTEL"
where
"HOTEL"."CITY"."NAME" = 'San Juan'
and
"HOTEL"."CITY"."ZIP" = "HOTEL"."HOTEL"."ZIP"
```

Field	HOTEL_HOTEL.HNO	HOTEL_HOTEL.NAME	HOTEL_HOTEL.ADDRESS	HOTEL_HOTEL.INFO	HOTEL_CITY.ZIP	HOTEL_CITY.NAME	HOTEL_CITY.STATE
Synonym		H_NAME				C_NAME	
Visible	X	X	X	X	X	X	X
Order							
Predicate						= 'San Juan'	

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Before you create the view, you can check the corresponding SQL statement using the option *Export SQL*.

To actually create the view choose *Execute*.



# SQL - View/Table Content



The screenshot shows the SAP SQL Editor interface. On the left, a tree view displays the database structure, with the 'CITY\_HOTEL' table selected. A context menu is open over this table, and the 'Content' option is highlighted. An arrow points from this menu option to the main editor window. The editor window shows the following SQL query:

```
SELECT * FROM "HOTEL","CITY_HOTEL"
```

Below the query, a table displays the data for the selected table. The table has the following columns: HNO, H\_NAME, ADDRESS, INFO, ZIP, C\_NAME, and STATE.

	HNO	H_NAME	ADDRESS	INFO	ZIP	C_NAME	STATE
1	201	Lucky Motel	476 Broadway Avenue, #137	?	00922	San Juan	PR
2	2693	Park Hotel	176 Cedar Ave, #95	?	00940	San Juan	PR
3	7191	Grand Hotel	76 Twelfth St., #166	?	00922	San Juan	PR

In the context menu of a table or a view you can choose to display the *Content* of this table/view.

# SQL – Table Definition I



The screenshot shows the SAP Database Studio interface. On the left, a tree view displays a hierarchy of database objects. The 'HOTEL' table is selected, and a context menu is open with the 'Open' option highlighted. An orange arrow points from this menu to the right-hand window. The right-hand window is titled 'HOTEL.HOTEL' and shows the table's definition. The 'Columns' tab is active, displaying a table with the following data:

	Name	Data Type	Dim	Code	Key	Not Null	Default	Comment
1	HNO	FIXED	4,0		X(1)	X		
2	NAME	CHAR	50	ASCII		X		
3	ZIP	CHAR	5	ASCII				
4	ADDRESS	CHAR	40	ASCII		X		
5	INFO	LONG		ASCII				

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If you choose to *Open* a table you'll get detailed information about the table definition.

In section *Columns* you see all columns of this table including the data type, default value and NOT NULL condition. The primary key columns are also shown.

It is possible to alter the table definition in this window. Just choose *Edit* in the context menu to do so.

# SQL – Table Definition II



Administration Database Messages Utility Statements SQL \*SQL Editor 1 HOTEL.HOTEL x

<Local>:TECHED MONA (Auto Commit: On, SQL Mode: Internal, Isolation Level: Read Committed)

Table Name: HOTEL Schema: HOTEL

Columns Constraints Indexes Foreign Keys Miscellaneous Optimizer Statistics

Name	Definition
HNO_CONS	HNO > 0
ZIP_CONS	SUBSTR(ZIP,1,1) BETWEEN '0' AND '9' ANDSUBSTR(ZIP,2,1) BETWEEN '0' AND '9' ANDSUBSTR(ZIP,3,1) BETWEEN '0' AND '9' ANDSUBS...

---

<Local>:TECHED MONA (Auto Commit: Off, SQL Mode: Internal, Isolation Level: Read Committed)

Table Name: HOTEL Schema: HOTEL

Columns Constraints Indexes Foreign Keys Miscellaneous Optimizer Statistics

Name	Unique	Disabled	Indexed Columns	Usage Count	Bad	Comment
HOTEL~NAME			"NAME" ASC	0		

---

<Local>:TECHED MONA (Auto Commit: Off, SQL Mode: Internal, Isolation Level: Read Committed)

Table Name: HOTEL Schema: HOTEL

Columns Constraints Indexes Foreign Keys Miscellaneous Optimizer Statistics

Name	Referencing Columns	Reference Schema	Reference Table	Reference Colu...	Rule	Comment
HOTEL_ZIP_IN_CITY	ZIP	HOTEL	CITY	ZIP	restrict	

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In the next sections you can see, which *Constraints*, *Indexes* and *Foreign Keys* exist for this table.

All of these settings can also be changed and new constraints / indexes / foreign keys can be created.

## SQL – Table Definition III



The screenshot shows the SAP SQL Editor interface. The main window displays the 'Optimizer Statistics' section for the table 'HOTEL' in the 'HOTEL' schema. The table has the following statistics:

Columns and Indexes	Distinct Values	Page Count	Execution Time
Table Statistic	815	8	2007-07-23 14:53:39
Columns			
HNO	815	0	2007-07-23 14:53:39
NAME	353	0	2007-07-23 14:53:39
ZIP	700	0	2007-07-23 14:53:39
Indexes			
HOTEL~NAME	0	3	

A context menu is open over the table statistics, with the following options:

- SQL Export SQL
- Content
- References
- Update** (selected)
- Update Columns
- Edit

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In the *Optimizer Statistics* section the optimizer statistics are displayed.

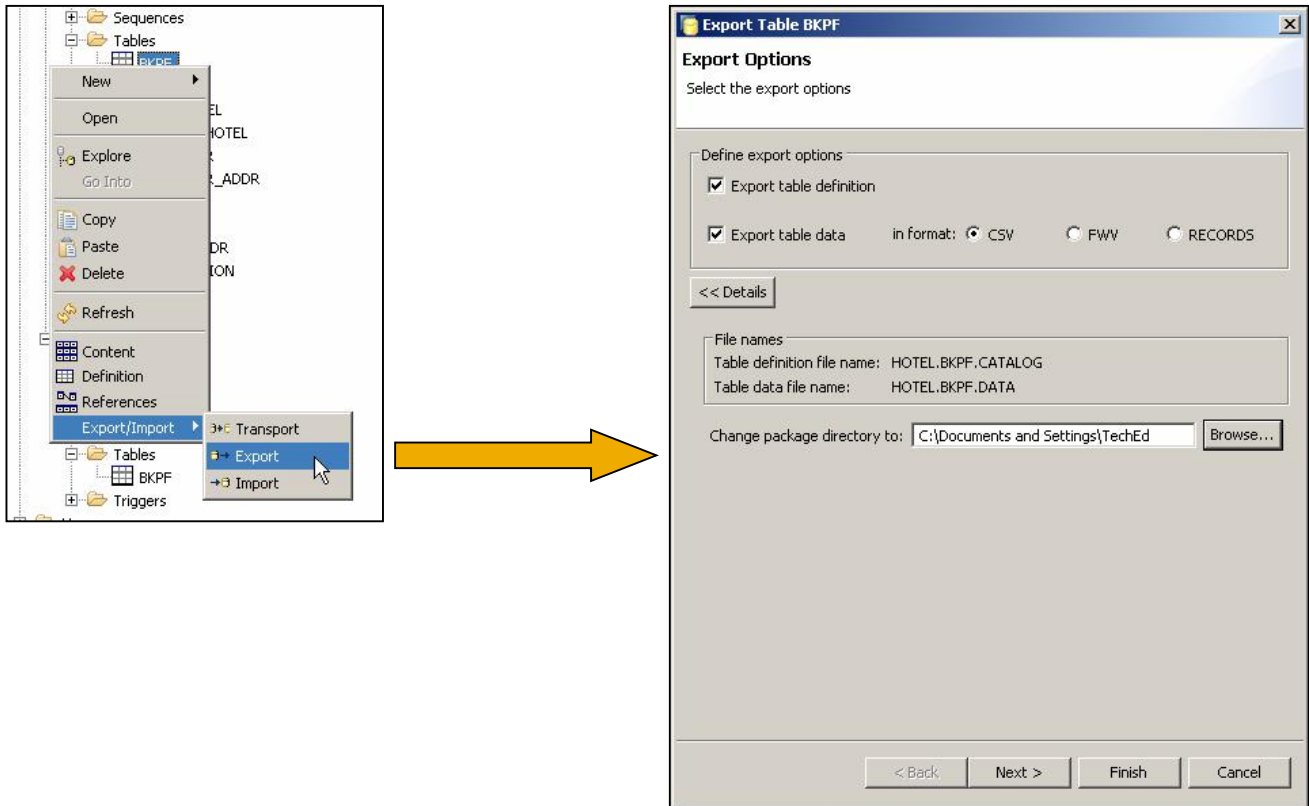
It is possible to update these statistics by choosing *Update*.

If you choose *Update Columns*, you can decide for which columns the statistics should be updated.

Accurate statistic values are important for the optimizer to be able to choose the best execution plan for join selects.

For large tables (> 1000000 rows) the sample value should be set to 5% - for smaller tables a sample value of 20000 rows is sufficient (note #808060).

## Loader – Export Table I



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The loader is now also integrated into the Database Studio – there was no loader GUI available in the old tools.

You can easily export a table by choosing *Export* in the context menu on a table name.

In the export dialog you can specify the export options like the export directory and the format in which the data should be exported.

## Loader – Export Table II



The screenshot shows the 'Export Table BKPF' dialog box in SAP. The 'Columns of table BKPF' section is active, displaying a list of columns with their data types. All columns are selected. Below the list are 'Select All' and 'Deselect All' buttons. The 'LOB Files' section shows 'One LOB file per LOB column' selected. A yellow arrow points from the dialog to a file explorer window showing the export results.

Column name	Data type
<input checked="" type="checkbox"/> MANDT	VARCHAR(3) ASCII
<input checked="" type="checkbox"/> BUKRS	VARCHAR(4) ASCII
<input checked="" type="checkbox"/> BELNR	VARCHAR(10) ASCII
<input checked="" type="checkbox"/> GJAHR	VARCHAR(4) ASCII
<input checked="" type="checkbox"/> BLART	VARCHAR(2) ASCII
<input checked="" type="checkbox"/> BLDAT	VARCHAR(8) ASCII
<input checked="" type="checkbox"/> BUDAT	VARCHAR(8) ASCII
<input checked="" type="checkbox"/> MONAT	VARCHAR(2) ASCII
<input checked="" type="checkbox"/> CPUTD	VARCHAR(8) ASCII
<input checked="" type="checkbox"/> CPUTM	VARCHAR(6) ASCII
<input checked="" type="checkbox"/> AEDAT	VARCHAR(8) ASCII
<input checked="" type="checkbox"/> UPDDT	VARCHAR(8) ASCII
<input checked="" type="checkbox"/> MMWERT	VARCHAR(8) ASCII

File Explorer Address: C:\Documents and Settings\TechEd\sdb\loader\packages\export\BERD00145761A\TECHED\20070723150200

Name	Size
20070723150200.cfg	3 KB
20070723150200.EXPORT	1 KB
20070723150200.xml	40 KB
HOTEL.BKPF.CATALOG	3 KB
HOTEL.BKPF.DATA	28.428 KB

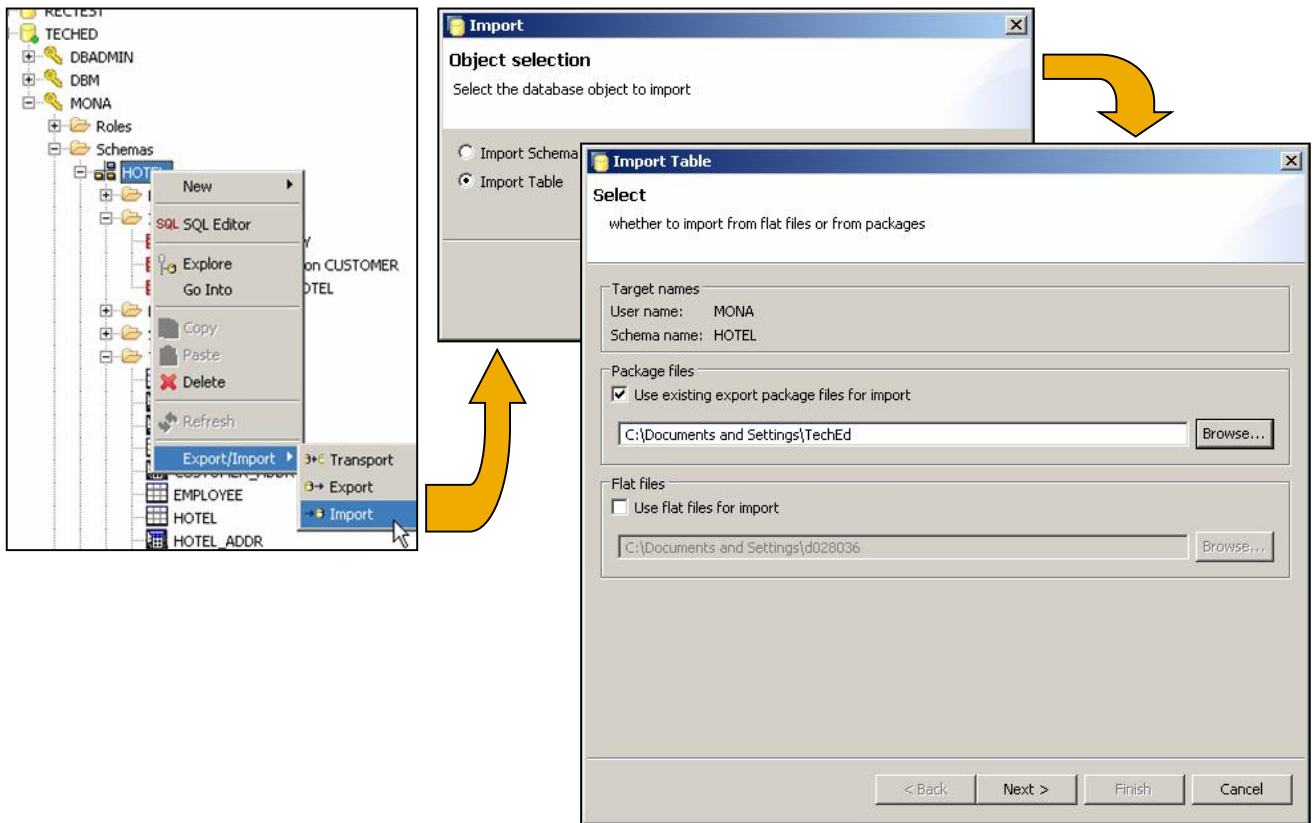
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In the next step you can decide which columns of the specified table should be exported.

As a result of the export the export files are created in the specified directory.

These files can now be used for an import into another database.

# Loader – Import Table I



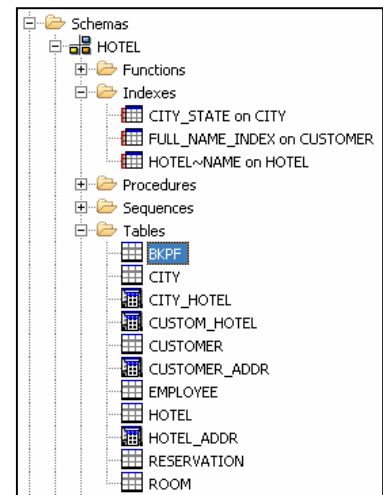
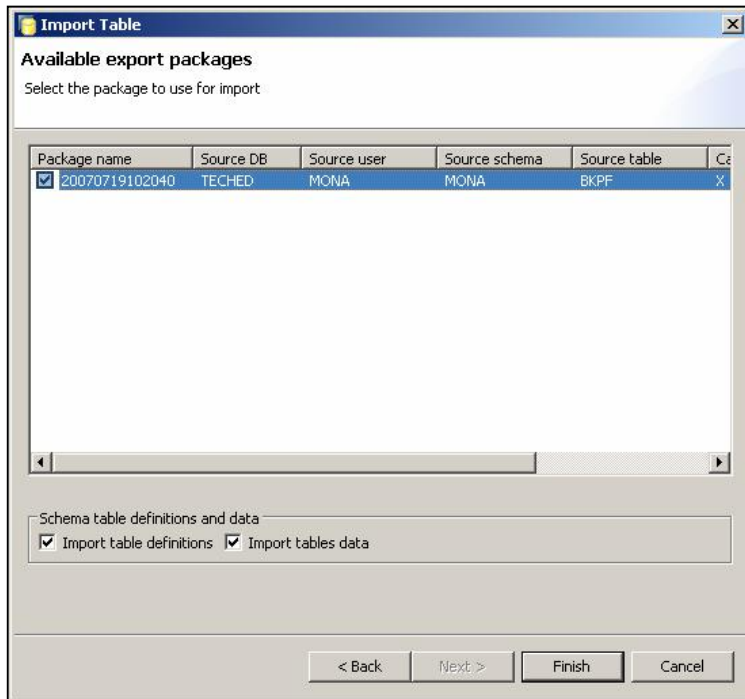
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You can import the exported data into a different database or into the same database into a different schema.

To start an import choose *Import* in the context menu on a schema name.

Database Studio helps you finding the export file with the data to be imported.

## Loader – Import Table II



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While the import is active, the job is shown in the *Progress* view in the lower part of the Database Studio Window. When the import is finished, the imported table is available in the tree.

It is also possible to transport tables between databases or schemas using drag and drop.

You just drag the table to the target database or schema and drop it there.



## Summary



Database Studio allows you to monitor and administer all MaxDB database instances in your system landscape.

- You can access all MaxDB instances of your system landscape – it doesn't matter on which platform and with which application it is running.
- All administrative tasks can be performed with the Database Studio.
- You can monitor your MaxDB instances. Performance problems can be analyzed and solved using this tool.

**Enterprise Class Database Technology from SAP for SAP**

**Further Information**

# SAP Network: Information on MaxDB



The screenshot shows a Microsoft Internet Explorer browser window displaying the SAP Community Network website. The address bar shows the URL <https://www.sdn.sap.com/irj/sdn/maxdb>. The page title is "MaxDB and SAP liveCache - Microsoft Internet Explorer". The website header includes the SAP logo and the text "SAP COMMUNITY NETWORK" and "Welcome Joerg Hoffmeister". The main content area is titled "SAP on MaxDB" and features several articles and a featured blog. A large orange banner is overlaid on the page with the URL <http://www.sdn.sap.com/irj/sdn/maxdb>. The left sidebar contains a search box and a navigation menu. The right sidebar contains a "CONTRIBUTE AND CONNECT" section, a "Register Now. It's Free!" section, a "FAQ" section, a "Downloads" section, a "Forums" section, a "Blogs" section, and a "Wiki" section.

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[MaxDB FAQ \(SDN wiki\)](#)

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(Under **Technologies** see **MaxDB 7.6.02**)

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SAP Network Wiki - Microsoft Internet Explorer

Address: <https://www.sdn.sap.com/irj/sdn/wiki?path=/display/MaxDB/Main&>

## MaxDB Main

View Edit Comments

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Jan 18, 2007 (view change)

### MaxDB

Welcome to MaxDB. This is the SDN WIKI starting point for topics around MaxDB. Feel free to create and maintain entries.  
Useful links are the [Getting started](#) and the preview downloads for Linux and Windows in the SDN download section [Technologies](#).

[See articles, features and more on the main MaxDB page](#)  
[Forum](#)

Moderators of this WIKI section are [Jörg Hoffmeister](#), [Marina Montag](#), [Christiane Hienger](#) & [Melanie Handreck](#).

#### Frequently Asked Questions

[FAQ](#) – These are the frequently asked questions for MaxDB.

#### Tuning

[Tuning MaxDB](#) – This section provides background information and tips about MaxDB Tuning.

#### Learning Map

[Education](#) – This page lists the available trainings for MaxDB.

#### References / Links

[MaxDB Services](#) – This section gives detailed information about available SAP MaxDB Services.

#### Support

[MaxDB Support Guide](#) – This section provides background information about MaxDB and tips concerning problem analysis.

#### Release Information

[MaxDB liveCache Release 7.7](#) – Release information on version 7.7  
[MaxDB Features described in SAP Notes](#) – This page contains the links to the available MaxDB Feature Notes.

#### Bibliography

No content found for label(s) maxdb\_bibliography.

#### Netweaver Books

In English & German from [SAP Press](#)

#### Recently Updated

- by [Christiane Hienger](#) (18 Jul) [MaxDB Examples Structure Analysis](#)
- by [Christiane Hienger](#) (18 Jul) [MaxDB Structure Analysis for Join Optimization, Example 3](#)
- by [Christiane Hienger](#) (17 Jul) [MaxDB Structure Analysis for Join Optimization, Example 2](#)
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Trusted sites

# SAP Network: MaxDB Forum



Forum Topic - Microsoft Internet Explorer

Address <https://www.sdn.sap.com/irj/sdn/forum?forumID=90&start=0>

Messages: 2,600 - Threads: 553 - Filter: [All Threads] - Pages: 37 - [ 1 2 3 4 5 | Next ]

Thread	Author	Views	Replies	Last Po
<a href="#">Official liveCache site</a>	<a href="#">Roland Mallmann</a>	936	0	Jun 26, 2007 1 by: <a href="#">Roland Mal</a>
<a href="#">MaxDB/liveCache Feature lists (SAP and non-SAP)</a>	<a href="#">Roland Mallmann</a>	920	0	May 17, 2007 1 by: <a href="#">Roland Mal</a>
<a href="#">MaxDB FAQs (updated 23.03.2007)</a>	<a href="#">Roland Mallmann</a>	1,528	0	Mar 23, 2007 9 by: <a href="#">Roland Mal</a>
<a href="#">MaxDB/liveCache SDN Blogs &amp; Wiki</a>	<a href="#">Roland Mallmann</a>	635	0	Mar 6, 2007 3: by: <a href="#">Roland Mal</a>
<a href="#">Welcome and Rules of Engagement</a>	<a href="#">Craig Cmehil</a>	809	0	Nov 16, 2006 9 by: <a href="#">Craig Cme</a>
<a href="#">Move a MaxDB instance to a server already running a MaxDB</a>	<a href="#">Fredrik Roseng...</a>	17	3	Jul 23, 2007 11 by: <a href="#">Markus Döl</a>
<a href="#">SAP DB changing the Log mode to the "Owerwrite mode is ON"</a>	<a href="#">Axel Henke</a>	28	5	Jul 23, 2007 11 by: <a href="#">Markus Döl</a>
<a href="#">Is there any similar method to deal with GUID like uniqueidentifier in SQL?</a>	<a href="#">Xuan Bi</a>	5	0	Jul 23, 2007 5: by: <a href="#">Xuan Bi</a>
<a href="#">SCM traing - Question for Moderators...</a>	<a href="#">Sume</a>	342	5	Jul 21, 2007 5: by: <a href="#">Hector Edu</a>
<a href="#">Maxdb 7.7 - finding current active sql</a>	<a href="#">Joe Dunleavy</a>	34	3	Jul 21, 2007 1: by: <a href="#">Natalia Khl</a>
<a href="#">PXA_NO_FREE_SPACE</a>	<a href="#">Peter Henke</a>	46	4	Jul 20, 2007 7: by: <a href="#">Eric Brunel</a>
<a href="#">Livecache Start problem via LC10</a>	<a href="#">sap basis007</a>	69	4	Jul 20, 2007 7: by: <a href="#">Eric Brunel</a>
<a href="#">reaching free space with SAP DB on Windows</a>	<a href="#">Axel Henke</a>			
<a href="#">Are their any negative effects in using the Oracle SQL Mode?</a>			2	Jul 19, 2007 9: by: <a href="#">Lars Bredd</a>
<a href="#">Migration SapDB 7.3 to MaxDB 7.6 de...</a>	<a href="#">Glovis Wichoski</a>	30	2	Jul 19, 2007 9: by: <a href="#">Glovis Wic</a>

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<Major Release>.<Minor Release>.<Support Package>.<Build>

=

<n>.<n>.<nn>.<nn nnn.nnn.nnn.nnn...>

Development focus on support packages

Check for availability and permission to use

Use Software Distribution Center (SWDC)  
and Product Availability Matrix (PAM)

If major and minor release remain unchanged,  
every move forward is allowed,

otherwise check PAM for your solution.

## Further Information



### → Public Web

SAP Developer Network:

Home: <http://www.sdn.sap.com/irj/sdn/maxdb>

Wiki: <http://www.sdn.sap.com/irj/sdn/wiki?path=/display/MaxDB/Main&>

Forum: <http://www.sdn.sap.com/irj/sdn/forum?forumID=90&start=0>

### → Related SAP Education Training Opportunities

<http://www.sap.com/education/>

ADM515, Database Administration MaxDB

TEWA60, SAP APO LiveCache Monitoring

UMEW50, MaxDB Empowering Workshop Administration

UMEW60, MaxDB Empowering Workshop Performance Monitoring and Optimization

WB550, MaxDB Internals Workshop

Thank you!







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