Session 1:
Low TCO with SAP® MaxDB™
Database Technology from SAP

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Within today’s session workshop we will look at some overall figures on SAP MaxDB and show how easy the database can be set up. The database that we install today, will accompany us for the rest of this enablement cycle.

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Each session will be held twice a day to cover different timezones. As we are located in Germany we will have an early morning and a late afternoon session.
Agenda

The Enablement Cycle

SAP MaxDB in 15 Minutes

SAP MaxDB Installation Demo
The cornerstone for SAP MaxDB was set in the late 70ties of the last century. It all started as an industry cooperation project between the Technical University of Berlin and Nixdorf Computers. As it pointed out to be of interest for the database market, Nixdorf took over full responsibility and ownership.

Over the years ownership changed repeatedly – passing Siemens-Nixdorf and Software AG – until the database reached SAP in 1997.

This was 4 years after the database started to serve as carrier for the SAP R/3 system. Thus today we look back to nearly 16 years of experience with SAP scenarios.

In 1997 the database appeared as SAP DB. Due to cooperation with MySQL, the database was branded to MaxDB in 2003. As this reselling agreement ended in 2007 the brand was changed to today’s SAP MaxDB.
Let’s look at some bulletpoints
SAP MaxDB is an affordable database according to low license costs – as much as 50% compared to other databases certified for SAP –
and in consequence lower maintenance costs as these correlate with the license and application value.

SAP MaxDB works out of the box and is optimized for SAP Solutions, further supported with its simplicity in use.
We offer easy-to-use tools for minimal administration – a lot of administration tasks are already automated.
MaxDB is highly integrated into SAP’s monitoring and scheduling and offers standard based, familiar interfaces for extended application areas.
We are talking about a well scaling database from SAP for SAP, fully integrated and rigorously tested - a database for all system ranges, from desktops to very large servers.
SAP MaxDB is owned, developed and supported by SAP

SAP MaxDB is SAP's own database - specifically designed to have lower TCO for SAP applications

We are continuously investing in the development of SAP MaxDB to offer you a strategic and safe database alternative

It is robust and reliable technology, optimized to run on all major SAP solutions

SAP MaxDB is SAP's preferred choice for SAP Business All-in-One fast-start program

The database performance is comparable to other databases, proved in over 14,000 commercial installations at approximately 6,000 customer sites world-wide
As you can see with this collection of logos, there are a lot of prominent customers that have chosen SAP MaxDB for their SAP systems.
If we look around where we can find SAP MaxDB technology installed, we are facing several areas of utilization all based on the same technology.

The database counts around 6300 installations in standard scenarios like ERP, BI, CRM etc, as well as 4000 installations as APO liveCache, a high-speed, in-memory application scenario of the SAP Supply Chain Management.

Additionally there are roughly 1800 installations as Content Server in SAP Knowledge Management and also roughly 2700 installations at SAP Hosting for different purposes.

All these are customer scenarios distributed among ~6200 customers worldwide – many other installations are not included.
Here’s some graphics on the MaxDB installation base. Please be aware that the numbers given only relate to standard application profiles and do not reflect liveCache and Content Server installations.

Since the year 2000, from the beginning of Linux within SAP, SAP MaxDB has evolved a base of more than 1800 installations – equal to more than a quarter of all Linux-based installations of SAP solutions.

The increase shows the same figure like the overall increase of SAP MaxDB installations and also shows that MaxDB/Linux is a major share of all MaxDB installations.
Are there size restrictions in SAP MaxDB?
■ Yes, the maximum size of current releases is 32TB

Are there customers using SAP MaxDB with data volumes bigger than 1 TB?
■ Yes, many customers and SAP installations have databases with 1TB and beyond.

Are there customers using SAP MaxDB with data volumes bigger than 5 TB?
■ Yes, we have even one reference customer with a database size of 5.3 TB.
Looking at the planning of SAP Hosting in terms of DBA capacities it showed out that they plan only one fifth of resources compared to more administration intensive databases.

SAP MaxDB is known for its easy administration and efficient and low resource requirements related to storage and servers, but on the long run, people drive the costs up.

Customer interviews showed that neither license nor maintenance fees have big cost impact, hardware has medium –

but first and foremost, TCO means people.
According to the SAP master price list, with only 5% of your SAP application value, SAP MaxDB license costs are considerably lower than license costs for other databases-
leading to less maintenance costs in the next calculation step.
SAP MaxDB is **considerably cheaper** in comparison to other available databases (5 year cost estimate for databases as part of SAP Business All-in-One).

SAP MaxDB is considerably cheaper in comparison to other available databases. On a 5 year scale for databases within Business All-in-One you could save up to 60% when utilizing SAP MaxDB, for example).
Hardware is an important cost factor, and it comes with vastly different price tags.

SAP MaxDB runs on all major operating systems. This means that you are free to choose the platform that suits your business needs best.

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<th>Vendor</th>
<th>Operating System</th>
<th>Architectures</th>
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<td>Hewlett Packard</td>
<td>HP-UX 11.11, 11.23, 11.31</td>
<td>PA-RISC, IA64</td>
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<tr>
<td>IBM</td>
<td>AIX 5.1, 5.2, 5.3, 6.1</td>
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<tr>
<td>Linux (Novell, Red Hat)</td>
<td>SUSE Linux Enterprise Server 9, 10, 11</td>
<td>IA32, IA64, X64, Power</td>
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<td></td>
<td>Red Hat Enterprise Linux 4, 5</td>
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<tr>
<td>Microsoft</td>
<td>Windows 2000, XP</td>
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<tr>
<td>SUN</td>
<td>Solaris 9, 10</td>
<td>Sparc, X64</td>
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</tbody>
</table>

Hardware is an important cost factor, and it comes with vastly different price tags.

SAP MaxDB runs on all major operating systems. This means that you are free to choose the platform that suits best: to your business needs and to your budget.

Take the time and have a look to the table with our platform set for SAP MaxDB.

Please refer to the SAP Product Availability Matrix in service.sap.com to check your individual solution settings and platform support.
SAP MaxDB is simple – it operates on a high level of abstraction.

The application talks to an SAP MaxDB Kernel as part of an SAP MaxDB instance. The kernel operates a set of log volumes and data volumes.

SAP MaxDB virtualizes all data volumes as an opaque block of storage space. Space management is fully automated and kept away from the SQL users and administrators.

Specifying SQL objects does not require any attribute specification about storage location and size.

SAP MaxDB is free of reorganization needs. There is nothing left to be done.
SAP MaxDB offers a tough and pragmatic portfolio.

The Installation Manager to set up and update SAP MaxDB instances.

SAP MaxDB offers familiar public interfaces like ODBC and JDBC, together with scripting interfaces for Perl, Python and PHP - and SAP MaxDB’s standard interface SQLDBC being the base for the aforementioned interfaces.

With SAP MaxDB version 7.7, rollout of the Database Studio has started. It is an Eclipse-based tool that collects several components as plugins under a single frontend. Database Studio is downward compatible and can be used to operate SAP MaxDB 7.6 as well. The DBAnalyzer to collect and evaluate monitoring data to find bottlenecks is also integrated to Database Studio.

For commandline use there are tools for administration (dbmcli), sql access and simple reporting (sqlcli) and for loader access (loadercli).
The SAP MaxDB Installation Manager focuses on installing MaxDB as standalone database. Only a little amount of time and a few clicks lead to an up-and-running database. The base can be a laptop, a workstation, or a mature server.

One can choose the degree of automation e.g. for restart and shutdown, for backup and for extending the dataspace whenever needed.

The installation manager is capable to comfortably install new instances as well as to upgrade existing ones – bringing them from online mode back to online mode again with only minimal interaction. Upgrading SAP MaxDB versions is only a question of a few minutes.

To ease installation, preconfigured templates can be used and demo data can be loaded during installation to follow the examples of the SAP MaxDB tutorial.
We already talked about Database Studio when looking at the SAP MaxDB portfolio.

Database Studio is our new integrated tool platform for SAP MaxDB, based on Eclipse, with a comfortable user interface.

Functionality is embedded as Plug-Ins for example for:

- Database management
- Landscape management
- SQL-Queries with reporting
- Loader functionality
- DBAnalyzer

So future requirements can be added easily, as well.

Database Studio supplements and completes the integrated administration and monitoring capabilities of SAP MaxDB as part of SAP.

It is available as of Version 7.7 but with minor restrictions it can also be applied for use with older SAP MaxDB versions.
This is a screenshot of our entry page about SAP MaxDB in our SAP network. Make this page your anchor to information about the database.

From here you can navigate to:

- download the free SAP MaxDB version for non-SAP use,
- to the forum SAP MaxDB/liveCache where people help each other around SAP MaxDB topics,
- to the wiki, offering a bunch of information like FAQ, tuning guides and support guides
- to the complete and newest documentation sets available,
- to training materials and much more.
SAP Partner Edge: Channel Partner Portal
SAP MaxDB & Fast Start

SAP MAXDB: THE DATABASE CHOICE FOR SAP BUSINESS ALL-IN-ONE

Lower Your Total Cost of Ownership

A database is a solution requirement for SAP Business All-in-One, so why not select a reliable product backed by the same vendor that provides your solution? SAP MaxDB provides reliable database functionality to store both application logic and business data. It is a central component of any SAP Business All-in-One solution.

Simple & Reliable - Ideally Suited for the Midsize Company

Midsize companies need a solid, affordable, low-maintenance database that works seamlessly with SAP and non-SAP applications. That's MaxDB. This database scales to let your customers manage their growing business and changing markets. And, because SAP developed the database, it's been optimized for SAP applications.

When it comes to purchasing the database component of a solution, your customers may see similar prices from competitive database products, but due to its simplicity SAP MaxDB administration costs are considerably lower. SAP MaxDB works out of the box, is completely integrated with SAP solutions and only requires minimal administration resulting in lower training and staffing costs.

For Channel Partners - MaxDB Means Greater Margins & Easier Sales!

Channel partners will greatly benefit by selling MaxDB as the database with their solution. With your SAP PartnerEdge contact you can make more money selling MaxDB than third-party vendor databases. And when you're talking to prospects MaxDB gives you a competitive edge, because now you're able to offer integrated ERP and CRM functionality that is affordable, will scale with their business and a database that is fully supported by SAP.
Here is the summary on the benefits of SAP MaxDB

SAP MaxDB is a low-cost enterprise-class DBMS,

is developed intensively,

is fit for the job and tuned for SAP applications

and means one-stop-shopping.

It is simple, robust and flexible enterprise class database technology from SAP for SAP.
Agenda

The Enablement Cycle
SAP MaxDB in 15 Minutes
SAP MaxDB Installation Demo
When you install an SAP system, the SAP MaxDB Software is installed automatically during the SAP installation with SAPINST.

However, when you would like to set up a standby instance or create a system copy, you might want to install just the database software – without an SAP system.

In this case you can use either SDBSETUP or SDBINST.

For updating an existing database to a newer Build of the same major database version, use SDBSETUP or SDBUPD.

For upgrading the database to a new major release, please follow the instructions in the upgrade guide.

If you want to remove all SAP MaxDB software from your server, then use SDBUNINST.
The *IndepData directory* (e.g. /sapdb/data) contains the configuration data and rundirectories of SAP MaxDB instances.

The *IndepPrograms directory* (e.g. /sapdb/programs) contains programs and libraries shared by the SAP MaxDB instances and SAP MaxDB applications. These programs are downwards compatible.

The location of these directories is specified during the first installation of SAP MaxDB software. They exist only once on the server.

The *InstallationPath* (e.g. /sapdb/<db_name>/db) contains the server software that depends on the database version (e.g. kernel). Several dependent directories can exist alongside each other.

The *rundirectory* (e.g. /sapdb/data/wrk/<db_name>) contains the status files of a SAP MaxDB instance and is the most important directory for monitoring and error analysis.
After having extracted the SAP MaxDB software package, SDBSETUP.exe can be called from the newly created subdirectory.
If you use SDBSETUP for a database upgrade, choose *Start Installation/upgrade* to start the installation or upgrade.

In the next window choose *Server + Client*.

In our case, we will only install the database software and afterwards use Databas Studio to create a database instance, so we pick *Install/upgrade software only*.

An existing software installation can be upgraded, but we will install the new software in parallel to the existing ones. We therefore need to specify a new name for the new software: `C:sdb\expertdb\db`. 
All SAP MaxDB installation tools write their log files into directory `<indep_data_path>/wrk`

The name of the log file depends on the kind of installation and contains the timestamp.
Database Studio is SAP’s new tool for managing SAP MaxDB databases.

As of SAP 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 currently available for Linux as well as for Windows.

When you start Database Studio for the first time, the Welcome Page is displayed. It provides access to the SAP MaxDB website and the SAP MaxDB documentation. Choose Workbench to start working with your databases.

Attention: when you install Database Studio, parts of the independent software are updated to the version of Database Studio (>= 7.7). If you want to avoid this, install Database Studio on a server where no SAP MaxDB software is installed yet.
This is the actual workbench of Database Studio, new servers, databases and more can be integrated into your landscape.

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.

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

Database Studio, DBMGUI und SQLStudio can be installed on the same server.
In the *Create Database Wizard*, you can choose to use either a simple or an advanced mode for the installation.

In the *simple installation mode* only a few database parameters have to be set. The database is installed with one data and one log volume.

In the *advanced mode* all parameters can be set and any number of volumes can be configured.

To be able to restore a backup during the installation process, the advanced mode is required.

In the next step specify on which server the database should be installed and how it is called. If you install the database on the same server on which the Database Studio is running, you don't have to enter a *Database Server*.
After you have selected the software version for your database, you have to specify the **Database Manager Operator**. This is the user used to connect with the Database Studio to the database. As this user is essential to administer the database, make sure to remember its password!
The *Create Database Wizard* allows to activate some automated features like:

- automatic start of the database during server reboot
- automatic extension of the data area in case a specific filling level is reached
- automatic update of the optimizer statistics – not recommended for SAP systems.

These features can also be activated after the database has been installed.

The database parameters can either be initialized with default values, can be copied from another database instance or restored from a data backup.
The instance type is required to differentiate between an OLTP (SAP MaxDB) or a liveCache instance.
To change a parameter value double-click the parameter in the list and enter the new value.

Whenever you change a parameter value, it is recommended to enter a comment that you can check later on why a specific parameter has been changed (e.g. because of a parameter recommendation from SAP).
In this step the data and log volumes are listed and can be (re)configured. To do so simply double-click an entry in the list.
Next you have to specify if you would like to create an empty database or if you would like to restore the data from an existing backup. If an empty database should be installed, you have to specify the Database System Administrator. This user is the first SQL user and the owner of the system tables.

If you want to set up a standby instance, you have to choose the second option – Create database for recovery. In this case the Database System Administrator is taken from the backup – as well as all other SQL users and all data. You have to know the user name and password specified in the source database for this user!

At the last step, you can either load the tutorial data, active overwrite mode for the log or enable the automatic saving of the log. Both latter options will enable you to avoid a possible logfull situation. For productive environments, we either recommend to regularly save the log manually, or switch on the automatic saving of the log.
In the summary check if all entered data is correct. Choose Back to correct any settings. If everything is OK, start the installation.

After a short while, the database instance has been created.
Now the ExpertDB instance has been created, it can be accessed from the Workbench. All users that were created during the installation are now available within the Usermanagement of Database Studio.
The *Administration* window can be opened from the user's context menu.

The user needs to be a DBM operator or the database system administrator – 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.
Thank You!
Bye, Bye – And Remember Next Session

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