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Product Management

Multiple Components in One Database
Programming Recommendations for Developers

11. January 2002

Version
1.1

An increasing number of components and solutions are united by Multiple Components in One Database (MCOD). As developers at SAP, we must ensure that our new applications are designed and implemented in such a way that our applications can be part of MCOD.

In this paper, therefore, you will find a brief introduction to MCOD and a few recommendations that help you prevent incompatible solutions, which will prohibit the usage of the entire solution in an MCOD scenario. Also new developments, even if they are not based on the SAP Web Application Server, should be able to support the concepts of MCOD to avoid incompatibilities.

1 Introducing Multiple Components in One Database

With the new installation option *Multiple Components in One Database (MCOD)*, SAP provides the possibility to install and operate several different mySAP.com components in one physical database. For example, it is possible to operate an SAP Customer Relationship Management (SAP CRM) system, an SAP R/3 system and an SAP Workplace system in one database on one server. In the same way, the operation of several identical components, for example several R/3 systems in one database are conceivable as well.

From the technical point of view the installation of several independent components in one database is realized by using separate schemas of the database. This is possible by the fact that in the mySAP.com environment a component connects to the database using one dedicated database user, which allows for a one-to-one relation between the component and the database schema.

Additional information is available under <http://intranet.sap.com/onedb> and <http://service.sap.com/onedb>

2 System Requirements

In principle, every component that is based on Web Application Server 6.10 and higher supports the MCOD installation option. Currently, the following components support MCOD:

- mySAP R/3 4.6C SR2
- mySAP CRM 2.0C SR1
- SAP Workplace 2.11 SR1

There is no plan for a downgrade of the MCOD feature to older releases.

For the following components, support of the MCOD feature is planned:

- mySAP BW 3.0A
- mySAP SEM 3.1A

Actual installation tools support an MCOD installation only indirectly. It's necessary to modify or exchange some installation files. Respective notes are available only for internal use at the moment and will be released to customers only on demand. With the new version of the installation tools, the MCOD option will be generally available.

MCOD is available for all databases supported by SAP.

3 Implications for Programming

For the database access, different mechanisms are used. Using ABAP, there are two different ways, Open SQL and Native SQL. In addition you can call C-functions. In the field of kernel programming using C, there are several interfaces provided by SAP. Another way for database access is using Java. In principle, if you build new applications, which perform database access using ABAP, C, Java or anything else, you should always use the standard methods supported by the basis technology. This allows an installation of these applications in common with other mySAP.com components in one database without having to make adjustments of coding later on.

The technical implementation of MCOD using a one-to-one relationship of the database user and the database schema ensures that each component accesses only its own tables. The database user is determined by profile and/or environment variables and is automatically used during the setup of the database connection. Never use hard coded values for the database user to access the database. Consequently, the presence of an MCOD environment does not require any special care with respect to database calls, neither from ABAP, nor from the C-Kernel.

With the SAP "Multi Connection" feature (kernel release 4.5 and higher) it's possible for applications to connect to more than one database or to connect to the same database with different users. This feature was implemented especially to access a second database like the *liveCache*. Also, for this connection there is one simple rule. Never use a hard coded database user, always determine this user dynamically during runtime or in a customizing step to allow the installation of several identical mySAP.com components in the same database to use different database schemas.

Currently, for the database access using Java, there is no final concept. The implementation group will also ensure that for the database access using Java there will be no special handling to be compatible with the MCOD concept.

Finally, the compatibility with the MCOD concept can be ensured by following two simple rules:

- **Always use the basis technology mechanisms to access the database, never open special connections on your own.**
- **Never use hard coded values for the database user name. If you have to use the database user name explicitly, always determine the value dynamically using basis technology.**

If you have additional questions about MCOD please contact georg.leffers@sap.com. For technical questions about accessing the database, contact the database interface group on <http://dbi.wdf.sap-ag.de:1080> .