



Data Base Modules

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A real database, with all the data management, control, and maintenance capabilities typically a part of a real data base management system, is essential to the operation of an enterprise-wide system.

Oracle® is the data base incorporated into EnterpriseSMS. Oracle manages all of the information required to configure and operate the EnterpriseSMS software. Further, the database is the repository of all activity recorded by the system. A Data Base Module (DBM) contains at least one data base kernel with appropriate data tables called an "instance", a variety of Oracle support tools and interfaces, and a collection of programs that provide interface with other EnterpriseSMS modules. Oracle is the world leader in RDBMS (Relational Data Base Management System) technology, and supports all features found in lesser databases. Oracle is a truly open data base product.

There are several types of Data Base Modules in the Data Base category. These modules differ in their approach to sharing data. The different DBM modules are the Simplex DBM, the Redundant DBM, and the Host-Subhost DBM.

A simplex data base module operates on a fully independent basis and only shares data with software modules outside than the Data Base category. Most EnterpriseSMS systems only have a single data base. A simplex module contains a single Oracle kernel and "instance" of the EnterpriseSMS data tables.

Redundant systems utilize a Redundant DBM (also called "multi-master" or "symmetrically replicated"). A Redundant DBM is composed of two equal, independent, simplex data base modules synchronized by an additional layer of configuration software which ensures their continuous synchronization over a network connection. When the connection between them is lost, both operate independently and resynchronize upon recovery of the connection between them. A redundant data base module provides for symmetric replication of data; that is, both underlying databases are synchronized when they are identical.

Host-Subhost database modules are more complicated because they support asymmetric replication of data between different instances. In these cases, the data is not replicated equally from one data base instance to another in order to achieve some specific system capabilities. The configuration of these systems is always a special, custom effort and the layer of configuration software is not standard for Host-Subhost DBM. However, the Oracle kernels and ESMS instances are identical in structure to those elements in other DBM.

Several important observations should be drawn from the above:

- The basic building blocks of a data base module are the Oracle data base kernel and an instance of EnterpriseSMS data tables. The different DBM (Simplex, Redundant, Host-Subhost) differs in the number of incorporated Oracle kernels and instances of EnterpriseSMS data tables, and the configuration software used to achieve replication and synchronization.
- The construction of the DBM from standard program components (kernel, instance, configuration software, Oracle tools) simplifies management of the EnterpriseSMS system. This design approach locates data in a standard component so that export and protection of the data export preserves the user's ability to recover the system to the point in time of the data base export. The data in the instance is independent of the configuration of a particular system. Thus, the system is easily upgraded as new features become available.
- The only connection requirement between DBM components is that they be network connectable. Thus, they may be physically installed on any suitable server or workstation with a suitable network connection.
- Every EnterpriseSMS system requires at least one data base module to be operable