System Administrator Responsibilities

A system administrator is responsible for the integrity and availability of the data in a database. This is a simple concept, but it is a huge responsibility. Some large corporations place a valuation on their data as high as $1 million per 100MB. The investment in dollars is not the only issue; many companies that lose mission-critical data simply never recover.

Job descriptions for system administrators vary widely. In small shops, the administrator might lay out the physical design, install SQL Server, implement the logical design, tune the installation, and then manage ongoing tasks, such as backups. At larger sites, tasks might be broken out into separate job functions. Managing users and backing up data are common examples. However, a lead administrator should still be in place to define policy and coordinate efforts.

Whether performed by an individual or as a team, the core administration tasks are as follows:

* Install and configure SQL Server.
* Plan and create databases.
* Manage data storage.
* Control security.
* Tune the database.
* Perform backup and recovery.

Another task sometimes handled by administrators is managing stored procedures. Because stored procedures for user applications often contain complex Transact-SQL (T-SQL) code, they tend to fall into the realm of the application developer. However, because stored procedures are stored as objects in the database, they are also the responsibility of the administrator. If an application calls custom stored procedures, the system administrator must be aware of this and coordinate with the application developers.

The system administration job can be stressful, frustrating, and demanding, but it is a highly rewarding, interesting, and respected position. As a system administrator, you are expected to know all, see all, and predict all, but you should be well compensated for your efforts.

### System Databases

SQL Server uses system databases to support different parts of the database management system (DBMS). Each database plays a specific role and stores information that SQL Server needs to do its job. The system databases are much like the user databases created in SQL Server. They store data in tables and contain the views, stored procedures, and other database objects that you also see in user databases. They also have associated database files (that is, .mdf and .ldf files) that are physically located on the SQL Server machine. [**Table 7.1**](javascript:moveTo('ch07tab01');) lists system databases and their related database filenames.

| Table 7.1. System Databases and Their Associated Database Files | | |
| --- | --- | --- |
| **Database** | **.mdf Filename** | **.ldf Filename** |
| master | master.mdf | mastlog.ldf |
| resource | mssqlsystemresource.mdf | mssqlsystemresource.ldf |
| model | model.mdf | modellog.ldf |
| msdb | msdbdata.mdf | msdblog.ldf |
| distribution | distmdl.ldf | distmdl.mdf |
| tempdb | tempdb.mdf | templog.ldf |

**Tip**

You can use the sys.master\_files catalog view to list the physical locations of the system database files as well as the user database files. This catalog view contains a myriad of information, including the logical name, current state, and size of each database file.