

SQL Server System Stored Procedures

Overview

System stored procedures in SQL Server are a collection of pre-defined T-SQL code that can be executed to perform system-level tasks. These procedures are stored in the master database and can be accessed from any database within the SQL Server instance.

Types of System Stored Procedures

System stored procedures can be broadly categorized into the following types:

- **Informational Procedures:** These procedures provide information about various SQL Server objects and settings. Examples include `sp_help`, `sp_columns`, and `sp_stored_procedures`.
- **Administrative Procedures:** These procedures are used to perform administrative tasks such as configuring server settings, managing security, and maintaining databases. Examples include `sp_configure`, `sp_addlogin`, and `sp_dboption`.
- **Security Procedures:** These procedures manage security-related tasks such as creating logins, managing user permissions, and setting database roles. Examples include `sp_adduser`, `sp_grantdbaccess`, and `sp_revokedbaccess`.
- **Replication Procedures:** These procedures are used to configure and manage SQL Server replication. Examples include `sp_addpublication`, `sp_addsubscription`, and `sp_removedistpublisher`.
- **Catalog Procedures:** These procedures provide information about the catalog of SQL Server objects. Examples include `sp_tables`, `sp_indexes`, and `sp_databases`.

Commonly Used System Stored Procedures

`sp_help`

The `sp_help` procedure provides information about a database object such as a table, view, or stored procedure. For example, to get information about a table named `Employees`, you would use:

```
EXEC sp_help 'Employees';
```

`sp_columns`

The `sp_columns` procedure returns information about the columns in a table or view. For example, to get information about the columns in the `Employees` table, you would use:

```
EXEC sp_columns 'Employees';
```

sp_stored_procedures

The `sp_stored_procedures` procedure lists all stored procedures in the current database. For example, to list all stored procedures, you would use:

```
EXEC sp_stored_procedures;
```

sp_configure

The `sp_configure` procedure is used to view or change server-level settings. For example, to view the current settings, you would use:

```
EXEC sp_configure;
```

To change a setting, you would specify the option name and value:

```
EXEC sp_configure 'show advanced options', 1;  
RECONFIGURE;
```

sp_addlogin

The `sp_addlogin` procedure creates a new SQL Server login. For example, to create a new login named JohnDoe with a password, you would use:

```
EXEC sp_addlogin 'JohnDoe', 'password123';
```

sp_dboption

The `sp_dboption` procedure is used to set database options. For example, to set the `read_only` option for the TestDB database, you would use:

```
EXEC sp_dboption 'TestDB', 'read only', 'true';
```

Usage and Best Practices

1. **Permissions:** Most system stored procedures require specific permissions to execute. Ensure you have the necessary permissions before attempting to use these procedures.
2. **Testing:** Always test system stored procedures in a development or test environment before using them in production to avoid unintended consequences.
3. **Documentation:** Document any changes made using system stored procedures for future reference and auditing purposes.
4. **Backups:** Perform backups of your databases before making significant changes using system stored procedures to safeguard against data loss.