

### Information:

Data	Data is information which comes in different types. Like Names, Age or height.
Database	Database is used to store data Systematically, which also makes it easier to handle a lot of data. It is also known as a logical world.
Database Mangement System	4 Types - Hierachical, Network, Relational and Object Oriented (which is the some used to save data in TABLE format).
Structured Query Language (SQL)	SQL can be used to INSERT, SEARCH, UPDATE and DELETE database records. SQL also helps optimizing and maintaining databases.

### Installation

Step 1.	Launch, "SQL Server Installation Center", through an ISO. Before installing run, "System configuration Checker", to make sure you do not have any block in installing the software.
Step 2.	After test run, go to "installation tab" choose "New SQL stand-alone" to get a complete new SQL Server or the possibility to change existing SQL server.
Step 3.	Through setup, make sure to add an administrative account, to access your SQL server.
Step 4.	You will now have the proper SQL features and application installed.

SQL Server Tools:

### Installation (cont)

<b>Server manager configuration</b>	Contains many settings like Network configuration settings. used for establishing the services that we expect to be running while the server is up are actually running.
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<b>SQL Server Management Studio</b>	Install on SQL Server through ISO or browser. System databases are installed for you as you install a new instance of SQL, which will be shown in the management studio.
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### Server roles

<i>Sysadmin</i>	Can perform all activities on the database Engine instance.
<i>Serveradmin</i>	Members can perform instance-wide configuration tasks.
<i>Securityadmin</i>	Manage instance-level permissions.
<i>Processadmin</i>	Can terminate processes running on a database
<i>Setupadmin</i>	Can add/remove linked servers from the database.
<i>Bulkadmin</i>	Allow the use of BULK INSERT statement on databases hosted on an instance.
<i>Diskadmin</i>	Members can manage instance related files.
<i>Dbcreator</i>	Create, alter, drop and restore databases hosted in an instance.
<i>Public</i>	All logins are members of this role.

### Database roles

<i>DBowner</i>	Allow all database configuration and management task.
<i>DBsecurityadmin</i>	allow the management on membership of fixed and flexible database-level-roles.
<i>DBaccessadmin</i>	assign to security principals, who needs to manage database access for logins.
<i>DBbackupoperator</i>	allows backup role.
<i>DBddladmin</i>	Be able to run any data definition language (DDL) command in the database



### Database roles (cont)

**DBdatawriter** allow modification on a user's Table such as "insert" and "delete".

**DBdatareader** Allow the user to read all data from user tables.

**DBdenydatawriter** Deny inserting, altering or deleting data from a database's user tables.

**DBdenydatareader** deny a user to read data stored within a database's user tables.

### Requirements:

#### Software:

- .Net 3.5 SP1 is a requirement for SQL Server 2012

- .Net 4.0 is a requirement that will be installed automatically during feature Installation Step.

- Powershell is a requirement

- Internet explorer 7 or later versions.

#### Hardware:

- SQL server 2012 requires minimum 6 GB HDD

- Super VGA (800x600) or Higher resolution

- Minimum Ram 512 MB, recommended 1 GB (for Express edition) - 1 GB, 4 GB recommended (all other editions)

- Minimum Processor speed X86 Processor (1.0 GHz), x64 Processor (1.4 GHz) Recommended 2.0 GHz or faster.

### 4 types of system databases

**Master database** - Most important out of the four databases.

- Contains system level information for the instance you're in.

- Holds information of other databases you create.

- Contains the initialization information for the SQL server, without it, the instance can't start.

**Model Database** - Act as a template for any database added to your instance

- All settings, objects, tables and basically all changes will be added to all databases you create.

### 4 types of system databases (cont)

**Msdb** - Management system database, has multiple jobs

- Tracks the SQ server agent which is used to shut your regular jobs like regular backups or data import/export jobs.

- List all the backups and restores done in the instance.

- Take regular backups of this database that it contains valuable information

**Tempdb** - Holds all temporary objects, created by you and by the database itself

- It will delete all changes and objects when the instance gets restarted.

### Useful SQL Commands

**Requesting a single column:** SELECT "Columnname"

With " , " you can add more FROM "Tablename"

**Request All** SELECT \*

FROM "Tabel-name"

**writing to Tabel**

INSERT INTO "tablename"

VALUES ("Write the value of a given Column")

**Selective search**

SELECT "Columnname"

FROM "Tablename"

WHERE "Columnname" = "Value in column"

**Creating Tabel**

CREATE TABEL "tablename"

**Delete option**

DELETE FROM "tablename"

WHERE "value"