

# SQL Server: Introduction

CIS 3730

Designing and Managing Data

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# Overview

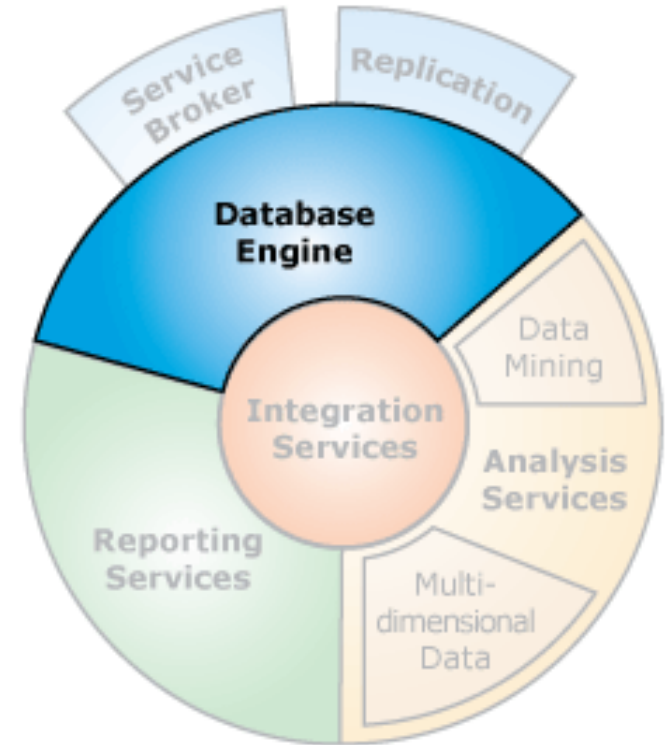
- ◆ SQL Server introduction
- ◆ SQL Server installation notes
- ◆ First feel of SQL Server
  - Configuration Manager
  - Folders and files
  - Attach a sample database
  - Using management Studio

# SQL Server Overview

- ◆ SQL Server is a relational database management and analysis system by Microsoft
  - Targeting the enterprise-level database market
- ◆ Major versions
  - SQL Server 7.0 (Windows NT)
  - SQL Server 2000 (Windows Server 2000)
  - SQL Server 2005 (Windows Server 2003)
  - SQL Server 2008 (Windows Server 2008)
  - SQL Server 2008 R2 (Windows Server 2008)

# SQL Server Services

- ◆ *Database Engine* is the core service for storing, processing and securing data.
- ◆ *Analysis Services (SSAS)*
  - Multidimensional Data supports OLAP by allowing you to design, create, and manage multidimensional structures.
  - Data Mining enables you to design, create, and visualize data mining models.
- ◆ *Reporting Services (SSRS)* delivers enterprise, Web-enabled reporting functionality to create reports, publish reports in various formats, and centrally manage security and subscriptions.
- ◆ *Integration Services (SSIS)* is a platform for building high performance data integration solutions, including ETL processing for data warehousing.



# SQL Server 2008 Download

## ◆ SQL Server 2008 R2 Express Edition

- The express edition offers database engine service and management tools

## ◆ Download

- <http://www.microsoft.com/express/Database/>
- Choose 32-bit or 64-bit based on your operating system (Windows)
- Make sure the installation options include at least "Database" with "Management Tools"

# SQL Server 2008 Installation

- ◆ SQL Server 2008 is a complex program, so please follow an installation guide to install SQL Server 2008
- ◆ Overview of SQL Server 2008 R2 Express Edition: provides a overview of SQL Server 2008 R2 Express and step-by-step installation guide with screenshots:
  - [http://www.sql-server-performance.com/articles/dba/sql\\_server\\_2008\\_r2\\_p1.aspx](http://www.sql-server-performance.com/articles/dba/sql_server_2008_r2_p1.aspx)
  - Note: there are 3 parts of the article
- ◆ Make sure you have these features/components installed
  - Database Engine Services
  - Management Tools

# Post-Installation Check

- ◆ Use the SQL Server Configuration Manager to view service status
- ◆ Login through the Management Studio
- ◆ Attach sample database files
- ◆ Navigate the database and other objects in the Management Studio

# First Feel of SQL Server 2008

## ◆ Demonstration

- Configuration manager
- SQL Server Management Studio
  - ◆ Login
  - ◆ Basic interface: object explorer and tool bar
- Database engine
  - ◆ Databases, tables, and other objects
  - ◆ Retrieving table data
  - ◆ Designing tables and columns
  - ◆ Editing tables and records
  - ◆ Relationship diagram
- Queries and views
  - ◆ Query editor
  - ◆ Running queries

# Configuration Manager

- ◆ Configuration manager is a tool to view SQL Server service status, start or stop services
  - <http://technet.microsoft.com/en-us/library/ms174212.aspx>



Make sure the database server is running

SQL Server Configuration Manager (Local)

- SQL Server Services
- SQL Server Network Configuration
- SQL Native Client 10.0 Configuration

Name	State	Start Mode	Log On As
SQL Server (SQLEXPRESS)	Running	Automatic	NT AUTHORITY\NETWORK SERVICE
SQL Server Agent (SQLEXPRESS)	Stopped	Other (Boot, Sys...	NT AUTHORITY\NETWORK SERVICE
SQL Server Browser	Stopped	Other (Boot, Sys...	NT AUTHORITY\LOCAL SERVICE

# SQL Server Management Studio

- ◆ SQL Server Management Studio is a major tool to control the DBMS
- ◆ Start Management Studio (in the SQL Server 2008 program menu) and login using the Windows Authentication
  - Note: on Windows 7 or Vista, you may want to right click the program command icon and select "Run as Administrator"

Use your Computer Name (or "(local)") and Instance Name (connected by "\") as the server name.

Connect to Server

Microsoft®  
SQL Server® 2008 R2

Server type: Database Engine

Server name: TABLET-PC-JACK\SQLEXPRESS

Authentication: Windows Authentication

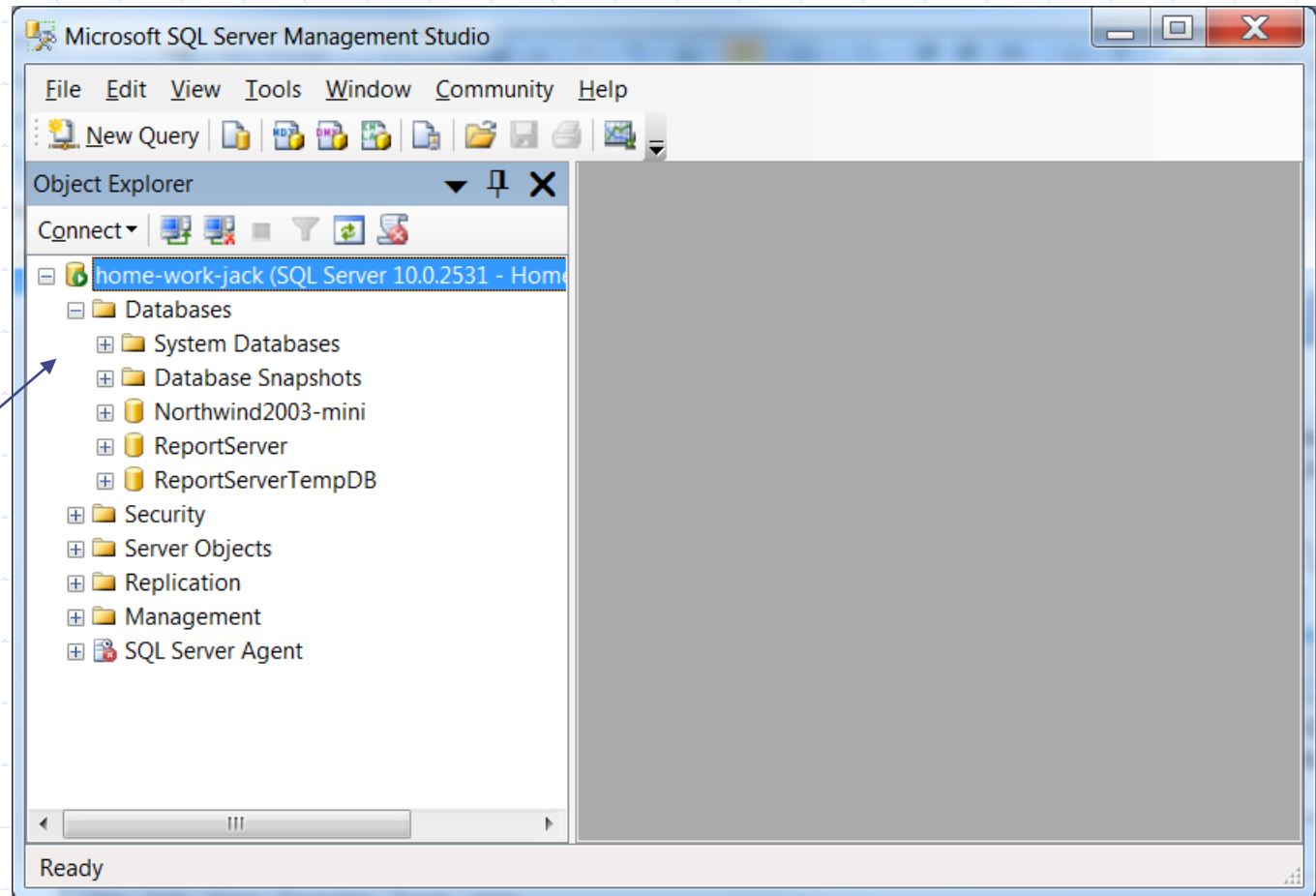
User name: Tablet-PC-Jack\Jack

Password:

Remember password

Connect Cancel Help Options >>

# Object Explorer

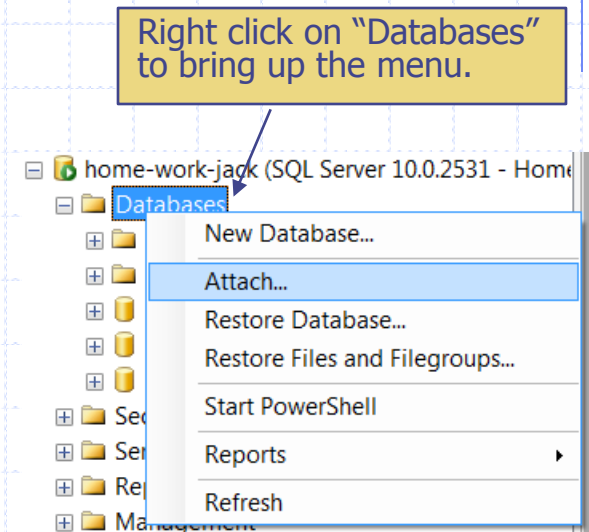


Object Explorer: all databases and other objects are here.

# Attach Sample Databases (1)

- ◆ Download the “Northwind” sample database from the course schedule website and extract the two files to a folder
  - Northwind2003-mini.mdf
  - Northwind2003-mini\_log.ldf
  - The 2 files must be in the same folder

- ◆ Note
  - It's recommended that database files should be put into a designated folder where you know it's directory path, otherwise you will have a difficult time to find them later.



# Attach Database (2)

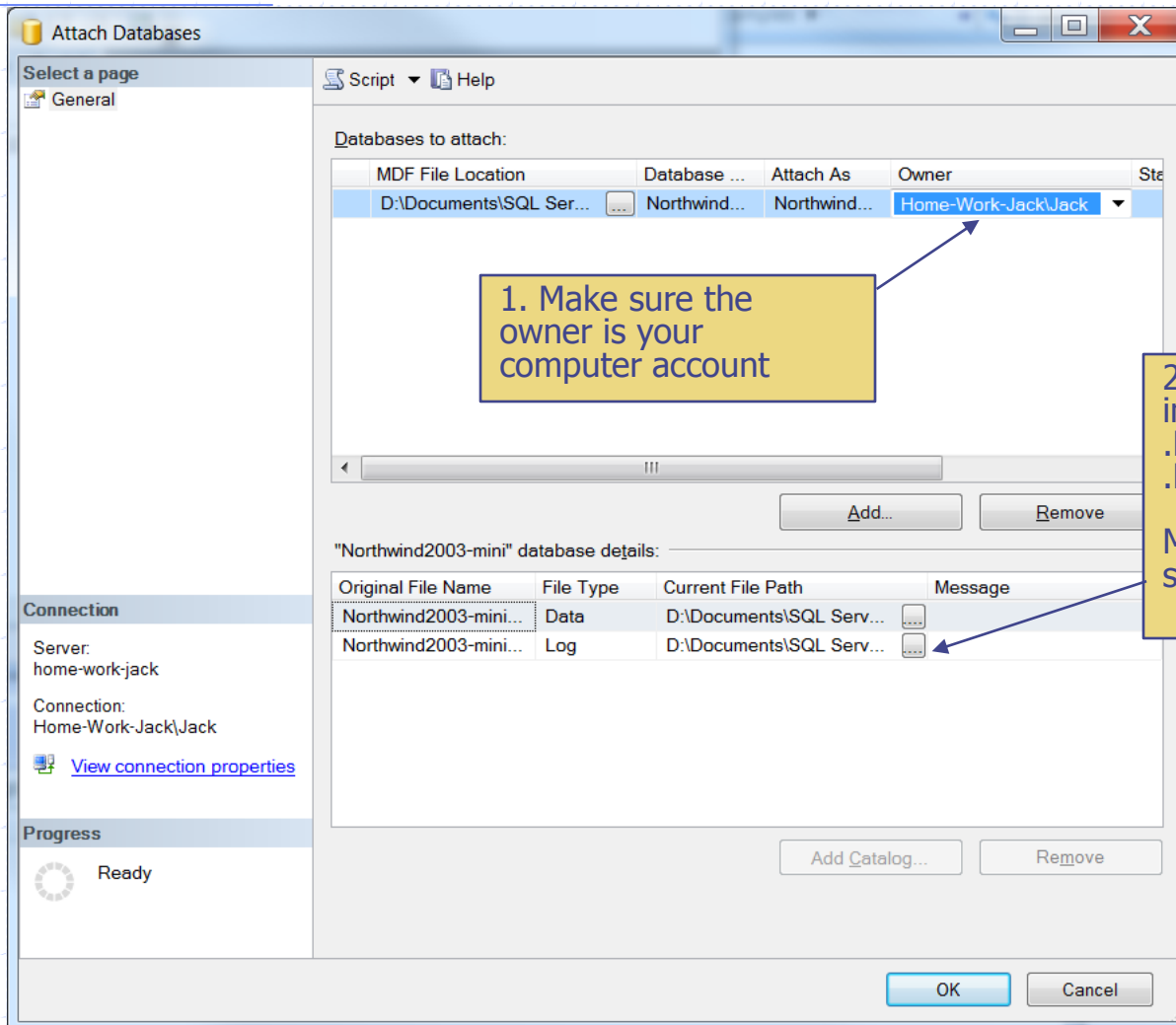
2. Select the "Northwind2003-mini.mdf" file and click OK. You need to remember in which folder you put the two database files.

1. Click the add button

3. Click the OK button. Note: on Windows 7 or Vista, you may want to right click the command icon and select "Run as Administrator", otherwise you may get a warning "permission denied".

2. Select the "Northwind2003-mini.mdf" file and click OK. You need to remember in which folder you put the two database files.

# Attach Database (3)



# Table Data

Object Explorer

Connect

home-work-jack (SQL Server 10.0.2531 - Home-W

Databases

- System Databases
- Database Snapshots
- ReportServer
- ReportServerTempDB
- Northwind2003-mini
  - Database Diagrams
  - Tables
    - System Tables
    - dbo.Categories
    - dbo.Customers
    - dbo.Employee
    - dbo.Order Det
    - dbo.Orders
    - dbo.Products
    - dbo.Shippers
    - dbo.Suppliers
  - Views
  - Synonyms
  - Programmability

SQLQuery1.sql - ho...rk-Jack\Jack (53)

```
/****** Script for SelectTopNRows command from SSMS *****/  
SELECT TOP 1000 [CustomerID]  
    , [CompanyName]  
    , [ContactName]  
    , [ContactTitle]  
    , [Address]  
    , [City]  
    , [Region]  
    , [PostalCode]
```

Results

CustomerID	CompanyName	ContactName	ContactTitle
1	ALFKI	Alfreds Futterkiste	Maria Anders
	ANATR	Ana Trujillo Emparedados y helados	Ana Trujillo
	ANTON	Antonio Moreno Taquería	Antonio Moreno
	AROUT	Around the Horn	Thomas Hardy
	BERGS	Berglunds snabbköp	Christina Berglund
	BLAUS	Blauer See Delikatessen	Hanna Moos
	BLONP	Blondel père et fils	Frédérique Citeaux
	BOLID	Bólido Comidas preparadas	Martín Sommer
	BONAP	Bon app'	Laurence Lebihan
	BOTTM	Bottom-Dollar Markets	Elizabeth Lincoln

home-work-jack (10.0 SP1) | Home-Work-Jack\Jack (53) | master | 00:00:00 | 91 rows

Right click for menus

# Table Design Metadata

Microsoft SQL Server Management Studio

File Edit View Project Debug Table Designer Tools Window Community Help

Object Explorer

Connect

home-work-jack (SQL Server 10.0.2531 - Ho

- Databases
  - System Databases
  - Database Snapshots
  - Amazon-Books-Mini
  - classexample
  - miniDW
  - Northwind2003-mini
    - Database Diagrams
    - Tables
      - System Tables
      - dbo.Categories
      - dbo.Customers
      - dbo.Employees
      - dbo.Order Details
      - dbo.Orders
      - dbo.Products
      - dbo.Shippers
      - dbo.Suppliers
    - Views
    - Synonyms
    - Programmability
    - Service Broker
    - Storage
    - Security
  - Project
  - ReportServer
  - ReportServerTempDB

HOME-WORK-JACK... - dbo.Employees

Column Name	Data Type	Allow Nulls
EmployeeID	int	<input type="checkbox"/>
LastName	nvarchar(20)	<input type="checkbox"/>
FirstName	nvarchar(10)	<input type="checkbox"/>
Title	nvarchar(30)	<input checked="" type="checkbox"/>
TitleOfCourtesy	nvarchar(25)	<input checked="" type="checkbox"/>
BirthDate	datetime	<input checked="" type="checkbox"/>
HireDate	datetime	<input checked="" type="checkbox"/>
Address	nvarchar(60)	<input checked="" type="checkbox"/>
City	nvarchar(15)	<input checked="" type="checkbox"/>
Region	nvarchar(15)	<input checked="" type="checkbox"/>
PostalCode	nvarchar(10)	<input checked="" type="checkbox"/>
Country	nvarchar(15)	<input checked="" type="checkbox"/>

Column Properties

(General)

(Name) EmployeeID

Allow Nulls No

Data Type int

Default Value or Binding

Table Designer

Collation <database default>

Computed Column Specification

Condensed Data Type int

Description

Deterministic Yes

DTS published No

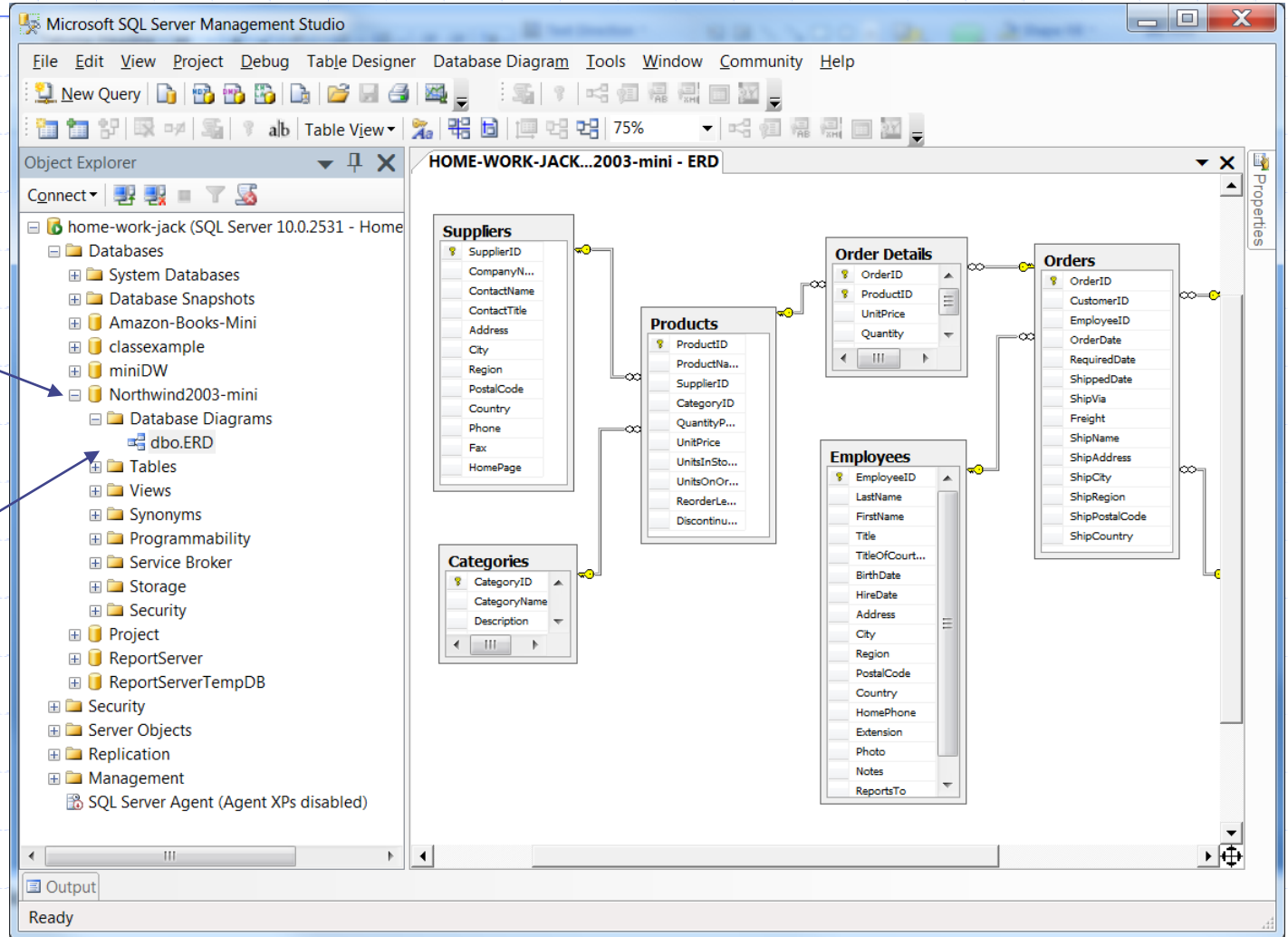
(General)

Right click on a table and select "Design"

Output

Ready

# Database Diagram



If you cannot view the diagram, it's probably because you are not the owner of this database. Right click the database and select properties (see next slide).

View a diagram of tables, columns and relationships.

# Database Properties

Database Properties - Northwind2003-mini

Select a page

- General
- Files
- Filegroups
- Options
- Change Tracking
- Permissions
- Extended Properties
- Mirroring
- Transaction Log Shipping

Script Help

Database name: Northwind2003-mini

Owner: Home-Work-Jack\Jack

Use full-text indexing

Database files:

Logical Name	File Type	Filegroup	Initial Size (...)	Autogrowth
Northwind2003-mini	Rows ...	PRIMARY	11	By 1 MB, unrestricted gro
Northwind2003-mini_log	Log			

Connection

Server: home-work-jack

Connection: Home-Work-Jack\Jack

[View connection properties](#)

Progress

Ready

Go to the "Files" Tab.

Make sure the owner is your Windows login account. If not, click this bottom to change the owner.

Click the "Browse" button to look for your Windows login account. The account name is preceded by the computer name.

# Using Management Studio

## ◆ SQL Server Management Studio

- <http://technet.microsoft.com/en-us/library/ms174173.aspx>

## ◆ Read textbook chapter 10

## ◆ Attaching and Detaching Databases

- <http://msdn.microsoft.com/en-us/library/ms190794.aspx>
- <http://msdn.microsoft.com/en-us/library/ms190209.aspx>
- <http://msdn.microsoft.com/en-us/library/ms191491.aspx>

# Readings and Resources

- ◆ SQL Server introduction on Wikipedia
  - [http://en.wikipedia.org/wiki/Microsoft\\_SQL\\_Server](http://en.wikipedia.org/wiki/Microsoft_SQL_Server)
- ◆ SQL Server 2008 tutorials
  - [http://msdn.microsoft.com/en-us/library/ms167593\(v=SQL.100\).aspx](http://msdn.microsoft.com/en-us/library/ms167593(v=SQL.100).aspx)
- ◆ Features and Tools Overview
  - <http://technet.microsoft.com/en-us/library/bb500397.aspx>
- ◆ SQL Server editions and components
  - [http://msdn.microsoft.com/en-us/library/ms144275\(v=SQL.100\).aspx](http://msdn.microsoft.com/en-us/library/ms144275(v=SQL.100).aspx)
- ◆ SQL Server 2008 Books Online
  - [http://msdn.microsoft.com/en-us/library/ms130214\(v=SQL.100\).aspx](http://msdn.microsoft.com/en-us/library/ms130214(v=SQL.100).aspx)
- ◆ SQL Server official website
  - <http://www.microsoft.com/sqlserver>
- ◆ SQL Server samples from the community
  - <http://sqlserversamples.codeplex.com/>