

Microsoft SQL Server Installation Guide

Version 2.1

For SQL Server 2012

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Introduction

These instructions are used by students enrolled in the Master of Science in Computer Information Systems and other Computer Science Department programs in both on-campus and online programs. In some places these instructions say that you should contact your instructor. Online students should normally contact their facilitator first.

The document begins with discussion SQL Server editions and how they are utilized in our courses, downloading SQL Server from BU MSDNAA or from Microsoft directly, and installing SQL Server itself. We continually update this document; please let us know of problems you encounter or questions not answered.

The examples in the main document are for the Microsoft Windows family, including Windows 2000, XP, Vista, and System 7.

These setup instructions are for SQL Server 2012 Developer and Express Editions, but can be used in installing other versions from 2008 and 2012 families. If you cannot install SQL Server on your own machine, and you have ready access to a SQL Server installation you may be able to use it. All of the exercises in CS669 can be completed using SQL Server 2005 or later. Some of the exercises in MET CS779 require Oracle, although SQL Server will work for most. CS 779 students may wish to use both SQL Server and a recent version of Oracle, such as 11gR2. CS779 students wishing to explore advanced topics as part of their term project should look to install the developer or enterprise editions. For CS699 you will want to use SQL Server 2012 Developer Edition (2008 or 2008R2 is ok as well). The express edition is not compatible for CS699, so if you are planning to take this course in the future, you will want to install the Developer Edition.

SQL Server Editions

SQL Server is released in several editions. To simplify your selection, we will focus on the Developer and the Express editions. For both CS 669 and CS 779 we recommend that you use the Developer Edition, it is required for CS699. The Developer Edition has the same full feature set as the Enterprise Edition with the exception of the license. Production environments cannot be implemented using the Developer Edition. Please refer to the SQL Server 2012 Licensing Quick Reference Guide for additional information. <http://www.microsoft.com/sqlserver/en/us/get-sql-server/how-to-buy.aspx>

The Developer Edition is especially useful for those students who plan investigate advanced SQL Server topics as part of their CS 779 term project. It is also the version that you will use for CS699. You can download the Developer Edition from the MET BU MSDNAA. Our installation instructions explain which features you may find useful for either course.

If you have difficulty downloading and installing the Developer Edition, the Express Edition can be used for all of the CS 669 and most of CS 779 assignments, but not for CS699. The Express Edition is a free version of SQL Server which is a smaller version that places limits on the size of the database, computing capacity and feature set. For some of the MET courses, we have found that the Express Edition is suitable on the most part, and has advantages of a much smaller load on the computer and simpler installation.

For additional details on the features supported by both the Developer (Enterprise), Express as well as other editions please refer to the Features Supported by the Editions of SQL Server 2012 which can be found here: <http://msdn.microsoft.com/en-us/library/cc645993.aspx>

Downloading SQL Server Installer

MSDN Academic Alliance

MET College is a member of the MSDN Academic Alliance, which allows faculty, graduate and undergraduate students currently enrolled in MET courses to obtain certain Microsoft products free of charge. You can obtain SQL Server Developer free of charge from the Microsoft Developer Network Academic Alliance (MSDNAA) Program.

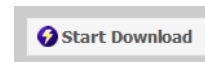
By the first day of class your instructor will submit your BU email address to Microsoft to enroll you in the program for the current semester. You will receive an email from the MSDNAA E-Academy License Management System (ELMS) from the address: @e-academy.com. The email will provide you with a username and password, and direct you to the MSDNAA site.


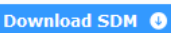


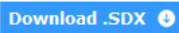

FAQ and basic information are at: <http://www.bu.edu/metit/hw-and-sw/msdn-academic-alliance-software-center/>

If you do not receive your email by the end of the first week, first check your junk email folder and then please follow the instructions at <http://www.bu.edu/metit/hw-and-sw/msdn-academic-alliance-software-center>

Directions to Download SQL Server Developer Edition from MSDNAA

1. You will receive an email from MSDNAA with your username and password as well as the link for the MSDNAA.
2. Click on *Start Shopping* link.
3. You should see a link for *Microsoft SQL Server 2012* within the *Popular* or *Servers* categories, click on it.
4. Look for *Microsoft SQL Server 2012 Developer 32/64-bit (English)...* and click *Add to Cart*
5. Sign in with your MSDNAA user name and password
6. Once your order is processed, click on the Start Download link
7. Follow the instructions as outlined:



1. Download the Secure Download Manager (SDM) installation file 
(If you have completed this step previously, go to step 3) 
2. Locate the file from step 1 and run it to install the SDM 
3. Download the .SDX file for your order 

4. Locate the file from step 3 and open it to download your software order 

8. In step 1 you will download is the Secure Download Manager (SDM) installation file. Once SDM is downloaded and installed, download the .SDX file and open it (step 3 above). The SDM will start the download of the SQL Server Installer. Note that it is several gigabytes in size and be sure to note the download destination under the download progress bar.

9. Once the download is complete go to the destination folder (i.e. *downloads* folder on your computer). The installation file is an ISO image file, and you will need to burn the image to a DVD.

If your computer does not have the capability to burn DVD images from an ISO files, please follow the following links to install a disk burning program or virtual mounting software

<http://www.bu.edu/metit/hw-and-sw/msdn-academic-alliance-software-center/#iso> as well as ftp://ftp.e-academy.com/pub/docs/Working_with_Image_Files.pdf

Directions to Download SQL Server Express Edition from Microsoft

1. Go to <http://www.microsoft.com/betaexperience/pd/SQLEXPCTAV2/enus/default.aspx>
2. Depending on what type of Windows environment (32bit or 64bit) which you are running, under the dropdown, choose **Express with Tools**. **Note:** if you are not sure if you have a 64 bit environment, 32 bit version will work fine on both.

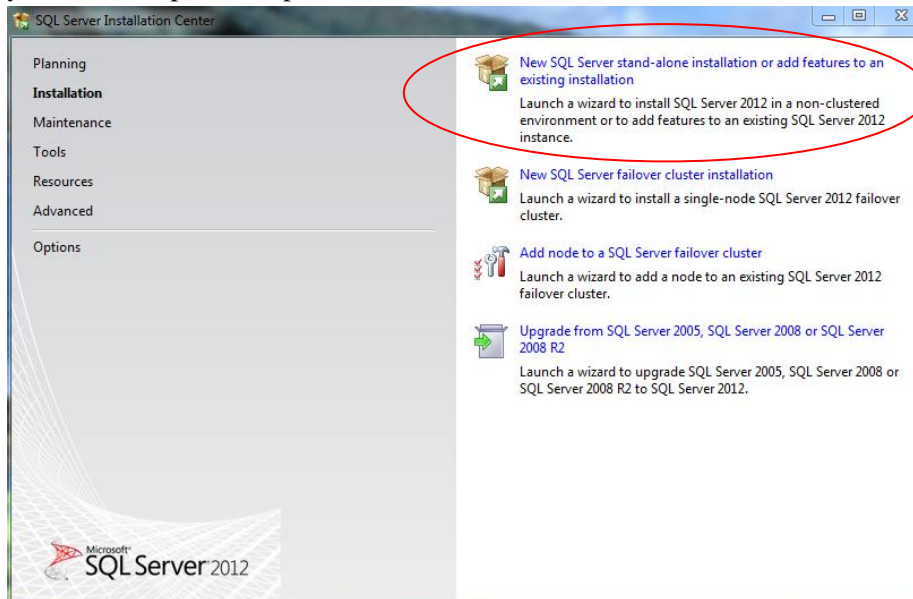


Download SQL Server 2012 Express	
32-Bit English Download	64-Bit English Download
Express with Tools	Select Product
Download	Download
Download also available in the following languages	

3. Click on Download, and the installation file will save to your default downloads folder

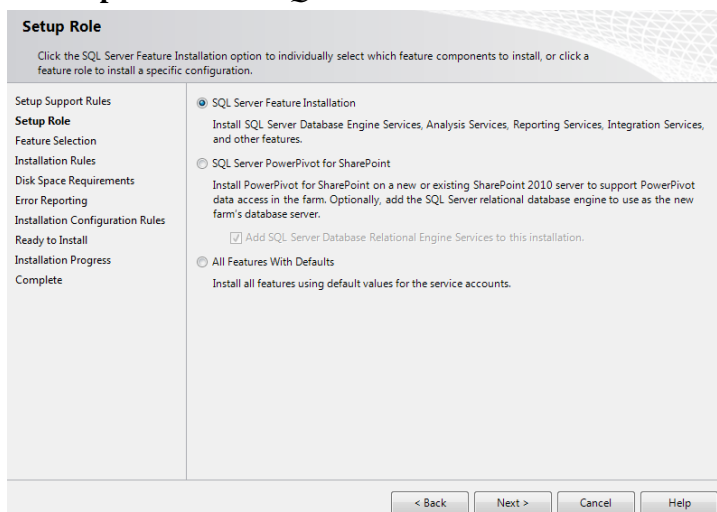
Installing SQL Server 2012 Developer Edition

1. Insert the SQL Server 2012 Developer installation DVD and Run *Setup.Exe* to start the setup of SQL Server 2012 Developer, if prompted, give administrative permissions.
2. Once the SQL Server Installation Center launches choose Installation tab (second from the right).
3. In most cases you will want to run a **New SQL Server New SQL Server stand-alone installation**, but other options are available, for example if you have SQL Server 2005 installed, you have an option to update.



(CS779Note) If you are configuring the installation for CS779 and you might want to explore failover clustering. Note that you can go back and install this component at a later time.

4. Setup will check and if needed install Setup Support Files. Click *OK* when complete.
5. On the Product Key page click *Next*.
6. On the License Terms page, check the box next to “*I accept the license terms*” and click *Next*.
7. Setup will check again and if needed install Setup Support Files. Click *Next* when complete.
8. **Setup Role:** Select *SQL Server Feature Installation* and click *Next*.



(CS779Note) If you are configuring the installation for CS779 and you might want to explore PowerPivot for SharePoint. Note that you can go back and install this component at a later time.

9. **Feature installation:** Select the components of SQL server to install on your computer.

- **Minimum Required Features List for CS 669**

You will need to choose at least two of these feature components in order to use SQL Server for CS669.

- Database Engine Services
- Management Tools- Basic
- For CS699 & CS779 in addition to what is listed above please review these descriptions to see which features you might be interested in for advanced topics for the term project.

- **Detailed Explanations:**

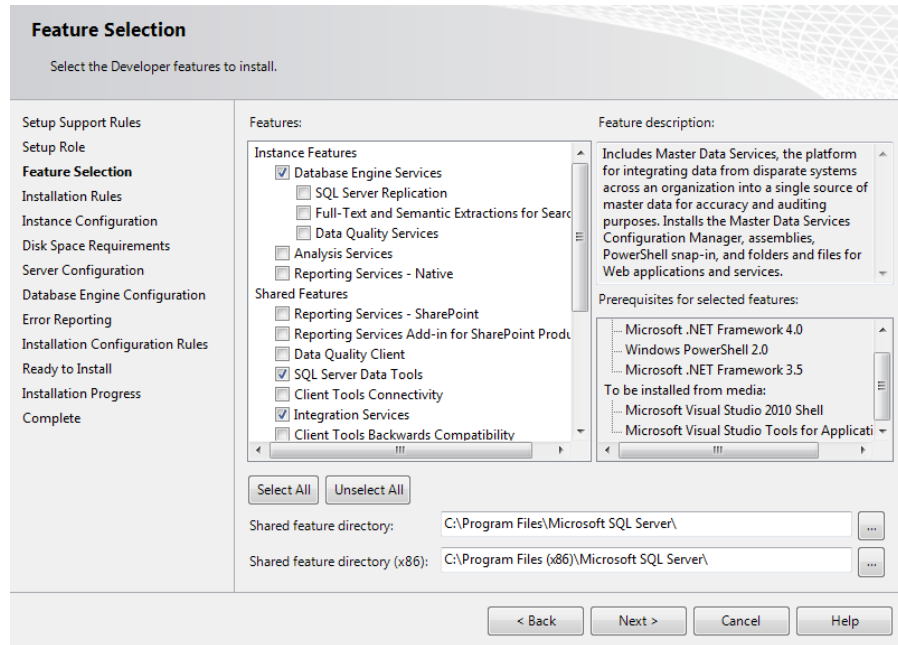
a. Instance Features:

- Database Engine Services: This installs SQL Server engine (the core service for storing, processing and security data) on your system. This is required for both CS669, CS699 and CS779.
 - SQL Server Replication: Allows for having synchronized copies of the data in two different locations. For example, this can be used in data distribution, synchronization, load balancing and disaster recovery.
 - a. (CS669) Not needed for this course
 - b. (CS699) Not needed for this course
 - c. (CS779) This is a worthy subject for a term project, and can be installed at a later time. Note that you may need two separate systems.
 - Full Text and Semantic Extractions for Search: In some database implementations where there are a lot of text data that needs to be searched, full text search allows for additional indexing for faster data retrieval.
 - a. (CS669) Not needed for this course
 - b. (CS699) We suggest that you install this component. It may not be used directly, but may be useful to explore on your own.
 - c. (CS779) This is a worthy subject for a term project, and can be installed at a later time.
 - Data Quality Services: Enables you to discover, build, and manage knowledge about your data. You can then use that knowledge to perform data cleansing, matching, and profiling.
 - a. (CS669) Not needed for this course
 - b. (CS699) Not required, however we suggest that you install this component. It may not be used directly, but may be useful to explore on your own.
 - c. (CS779) This is a worthy subject for a term project, and can be installed at a later time. Make sure to select Data Quality Client under Shared features.

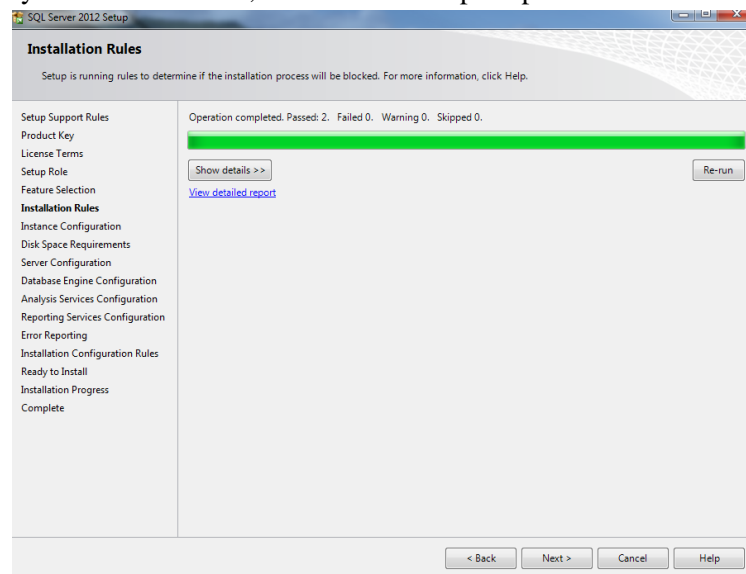
- Analysis Services: Provides support for analytical processing (OLTP) and data mining, such as when you set up a data warehouse and want to perform some ad hoc queries against cubes.
 - (CS669) Not needed for this course.
 - (CS699) This is a required component service that will be used in data mining exercises.
 - (CS779) If you plan to do a Data Warehouse project or data mining you will need this.
 - Reporting Services: Allows for creation of Reports based on data in Online Transaction Processing (most common databases) and Data Warehouses. The reports can be in the form of tables, charts, and other formats.
 - (CS669) Not needed for this course
 - (CS699) Not needed for this course.
 - (CS779) This is a worthy component to explore as part of a term project.
- b. Shared Features:
- Reporting Services: Allows for creation of Reports based on data in Online Transaction Processing (most common databases) and Data Warehouses. The reports can be in the form of tables, charts, and other formats.
 - (CS669) Not needed for this course.
 - (CS699) Not needed for this course.
 - (CS779) This is a worthy component to explore as part of a term project.
 - Data Quality Client: Not needed unless you are planning to try Data Quality Services for CS779
 - SQL Server Data Tools: Formerly Business Intelligence Development studio, A version of Visual Studio with some DBMS components for Analysis services, and development tools, etc.
 - (CS669) You will probably not need this component, but it is recommended that you install it for future courses as it's an integral part of SQL Server.
 - (CS699) This is a required component service that will be used in data mining exercises.
 - (CS779) This component is needed for most advanced topics so it should be installed.
 - Client Tools Connectivity: components to communicate between clients and servers.
 - (CS669) Not needed for this course
 - (CS699) Not needed for this course
 - (CS779) Might be needed for some advanced components, check if needed for what you are planning to do for the term project, can be added later.

- Integration Services: This is needed for data warehouse Extraction Transformation Loading Processes when data needs to be transformed and loaded into the database.
 - (CS669) Not needed for this course.
 - (CS699) This is a required component.
 - (CS779) If you plan to do a DW project or data mining you will need this component.
- Client Tools Backwards Compatibility: This is not needed for the courses in this program, but in production environments if you connect to older versions of SQL Server from management tools this option is needed.
- Client Tools SDK: Additional Software Development Kit with recourses for developers.
 - (CS669) Not needed for this course
 - (CS699) Not needed for this course
 - (CS779) You might want to do some research to see if there might be anything here of interest for a term project, especially if you enjoy programming in Object Oriented languages.
- Documentation Components: This is the documentation for SQL Server. Note that this information is also available online.
- Management Tools Basic & Complete: you will need this to work with SQL Server, this is the GUI interface that include components such as the GUI Query interface as well as components for advanced topics such as analysis and integration services as well as the database tuning advisor. It is required that you install the Management Tools Complete for all courses.
- Distributed Replay Controller and Client. An advanced topic component. Works similar to SQL Server Profiler to capture traces against upgraded environments.
 - (CS669) Not needed for this course
 - (CS699) Not needed for this course
 - (CS779) You might want to do some research to see if there might be anything here of interest for a term project.
- SQL Client Connectivity SDK: Additional Software Development Kit with recourses for developers.
 - (CS669) Not needed for this course
 - (CS699) Not needed for this course
 - (CS779) You might want to do some research to see if there might be anything here of interest for a term project.
- Master Data Services: A platform for integrating data from disparate systems across an organization into a single source of master data for accuracy and auditing purposes.
 - (CS669) Not needed for this course
 - (CS699) Not needed for this course
 - (CS779) You might want to do some research to see if there might be anything here of interest for a term project.

- c. Shared Features Directory: Note the paths where SQL server will install the shared components (default is Program Files folder within C drive.)



10. Installer will verify Installation Rules, click *Next* when prompted.



11. Instance Configuration

- Generally you can leave the Default Instance. The Named instances would be used if you want to create multiple instances of SQL Server on the same machine. If you are installing SQL Server for CS779 this might be a worthy topic to explore for the term project.
- Choose the installation path for SQL Server (default is Program Files folder within C drive.)

The screenshot shows the 'Instance Configuration' window in the SQL Server Setup. The left sidebar lists various setup steps, with 'Instance Configuration' currently selected. The main area shows the configuration for a 'Default instance'. The 'Instance ID' is set to 'MSSQLSERVER'. The 'Instance root directory' is 'C:\Program Files\Microsoft SQL Server\'. The 'SQL Server directory' is 'C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER'. Below this is a table for 'Installed instances' which is currently empty. At the bottom are buttons for '< Back', 'Next >', 'Cancel', and 'Help'.

Instance Configuration

Specify the name and instance ID for the instance of SQL Server. Instance ID becomes part of the installation path.

Setup Support Rules
Setup Role
Feature Selection
Installation Rules
Instance Configuration
Disk Space Requirements
Server Configuration
Database Engine Configuration
Error Reporting
Installation Configuration Rules
Ready to Install
Installation Progress
Complete

☒ Default instance
☐ Named instance: MSSQLSERVER

Instance ID: MSSQLSERVER

Instance root directory: C:\Program Files\Microsoft SQL Server\

SQL Server directory: C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER

Installed instances:

Instance Name	Instance ID	Features	Edition	Version
---------------	-------------	----------	---------	---------

< Back Next > Cancel Help

- Review the Disk Space Requirements and click *Next* when prompted.

The screenshot shows the 'Disk Space Requirements' window in the SQL Server 2012 Setup. The left sidebar lists various setup steps, with 'Disk Space Requirements' currently selected. The main area shows a 'Disk Usage Summary' with a green checkmark indicating that the disk space requirements are met. The summary lists the following requirements: Drive C: 6794 MB required, 115612 MB available; System Drive (C:): 3380 MB required; Shared Install Directory (C:\Program Files\Microsoft SQL Server\): 1229 MB required; and Instance Directory (C:\Program Files\Microsoft SQL Server\): 2185 MB required. At the bottom are buttons for '< Back', 'Next >', 'Cancel', and 'Help'.

SQL Server 2012 Setup

Disk Space Requirements

Review the disk space summary for the SQL Server features you selected.

Setup Support Rules
Product Key
License Terms
Setup Role
Feature Selection
Installation Rules
Instance Configuration
Disk Space Requirements
Server Configuration
Database Engine Configuration
Analysis Services Configuration
Reporting Services Configuration
Error Reporting
Installation Configuration Rules
Ready to Install
Installation Progress
Complete

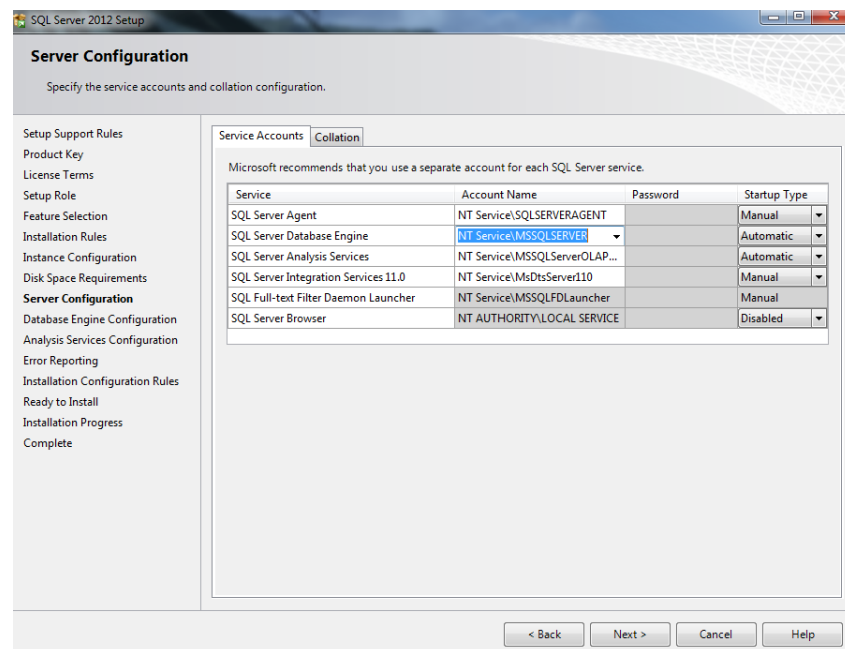
Disk Usage Summary:

- ✓ Drive C: 6794 MB required, 115612 MB available
- System Drive (C:): 3380 MB required
- Shared Install Directory (C:\Program Files\Microsoft SQL Server\): 1229 MB required
- Instance Directory (C:\Program Files\Microsoft SQL Server\): 2185 MB required

< Back Next > Cancel Help

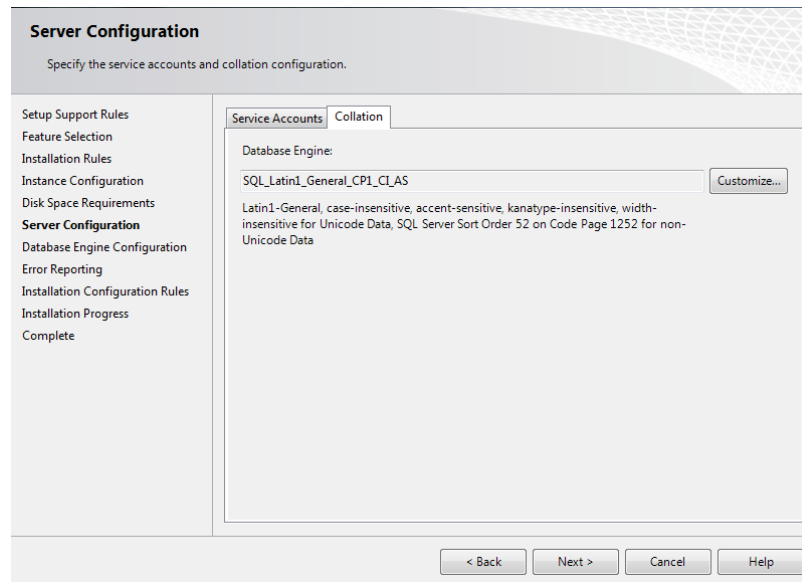
13. Under **Server Configuration** set Configuration set both SQL Server Agent, Analysis Services (if installed) and SQL Server Database Engine to Manual (unless you want it to run all the time with your system which will use up a lot of system resources when you are not using the Sql Server). These are services that run components of SQL Server.

- Please note the following:
 - a. **SQL Server Agent** is used for running scheduled jobs, such as backups, scheduled sql scripts and db maintenance. If this was a production environment you would want this service set to automatic.
 - b. You will need **SQL Server Database Engine** to run SQL Server. Since DBMS uses a lot of system resources, we would recommend running it manually when you need it.
 - c. If you installed other components for SQL Server for advanced topics, you should also set them to manual so that they don't run on system startup.
 - d. SQL Server Browser can be left disabled.
 - e. You will need **SQL Server Analysis Services** for CS699; this runs the back-end data mining components.
 - f. It is strongly recommended to set the Account name for services, especially the **SQL Server Analysis Services** to **NT AUTHORITY\LOCAL SERVICE**



The image above are the defaults, we suggest that you set Account Name to **NT AUTHORITY\LOCAL SERVICE**

- Check the collation tab at the top. For our purposes this can be left at default SQL_Latin1_General_CP1_CI_AS which is Latin1-General case insensitive. This drives how SQL server recognizes commands, for example you can choose a different language or set it to be case sensitive. Some applications require for you to choose a specific collation. You can click *Customize* to change it. Click *Next* when done.



14. Database Engine Configuration

- a. Account Provisioning:
 - Choose the authentication mode for the system. Windows authentication will use your windows account privileges to connect to SQL Server. **We highly recommend using Mixed Mode** so that there is an additional built in SA account with a separate user name and password as well as your built in windows account.
 - **Make sure to add users (such as your account) to SQL Server Administrators (click on Add Current User) if it is not already there.**
 - These accounts will allow you to log into SQL Server.
 - Note that the server itself does not need these accounts and runs as a service which you specified in previous step.
- b. You can leave Data Directories to defaults. Data Directories can be changed if you have a multiple disk environment and for performance want to separate out where different parts of the DBMS go. For example, in production environments the LOG components should go on a separate disk array, which will improve performance of the system.

The screenshot shows the 'Database Engine Configuration' wizard. The left sidebar lists various setup steps, with 'Database Engine Configuration' highlighted. The main window has three tabs: 'Server Configuration', 'Data Directories', and 'FILESTREAM'. The 'Server Configuration' tab is active, displaying instructions to specify authentication mode and administrators. The 'Authentication Mode' section has two radio buttons: 'Windows authentication mode' and 'Mixed Mode (SQL Server authentication and Windows authentication)', with 'Mixed Mode' selected. Below this, there are fields for 'Enter password:' and 'Confirm password:', both containing six dots. The 'Specify SQL Server administrators' section shows a list box with one entry: 'JackPolnar-PC\Jack Polnar (Jack Polnar)'. To the right of the list box, a note states: 'SQL Server administrators have unrestricted access to the Database Engine.' At the bottom of the list box are three buttons: 'Add Current User', 'Add...', and 'Remove'. The bottom of the wizard features four navigation buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

Database Engine Configuration
Specify Database Engine authentication security mode, administrators and data directories.

Setup Support Rules
Setup Role
Feature Selection
Installation Rules
Instance Configuration
Disk Space Requirements
Server Configuration
Database Engine Configuration
Error Reporting
Installation Configuration Rules
Ready to Install
Installation Progress
Complete

Server Configuration | Data Directories | FILESTREAM

Specify the authentication mode and administrators for the Database Engine.

Authentication Mode

☐ Windows authentication mode

☒ Mixed Mode (SQL Server authentication and Windows authentication)

Specify the password for the SQL Server system administrator (sa) account.

Enter password:

Confirm password:

Specify SQL Server administrators

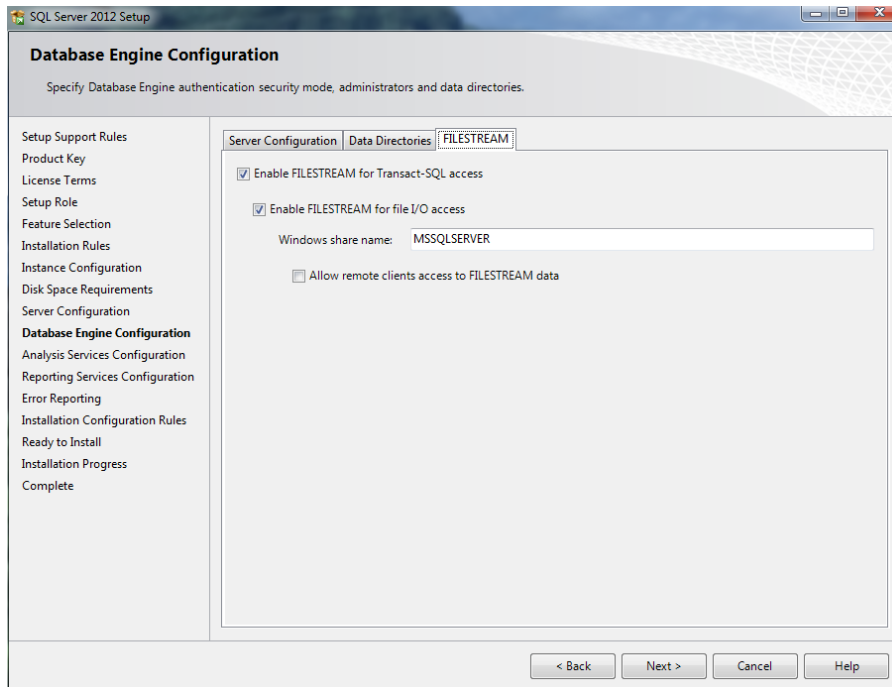
JackPolnar-PC\Jack Polnar (Jack Polnar)

SQL Server administrators have unrestricted access to the Database Engine.

Add Current User Add... Remove

< Back Next > Cancel Help

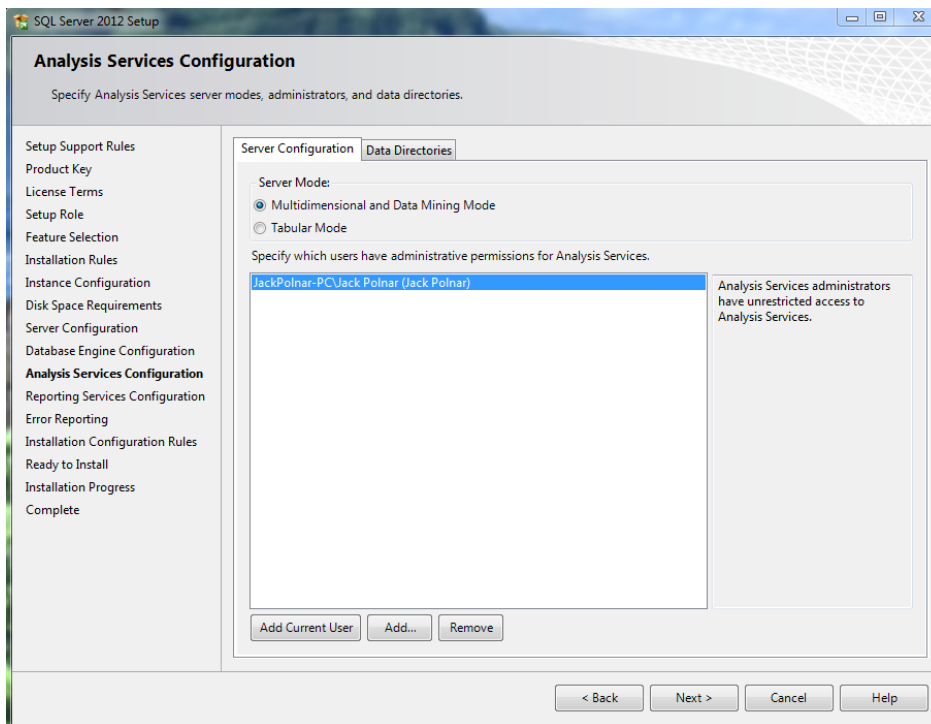
- c. If you are installing SQL Server for CS779 you might want to enable FILESTREAM if you plan to explore large file types such as Binary language objects (BLOB). We suggest that this feature is enabled for CS699.



15. Analysis Services Configuration

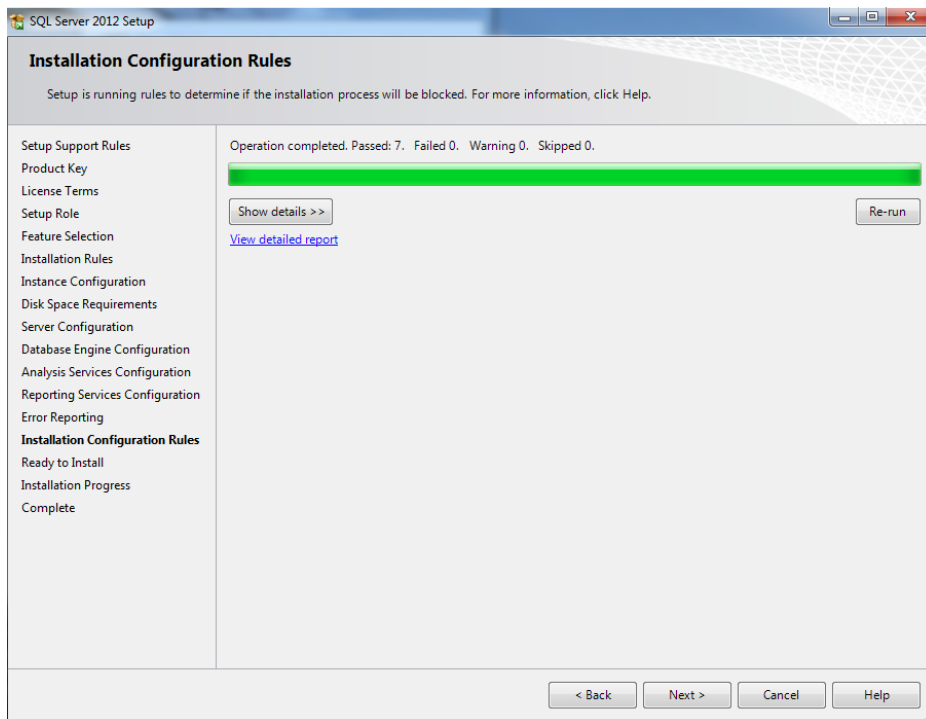
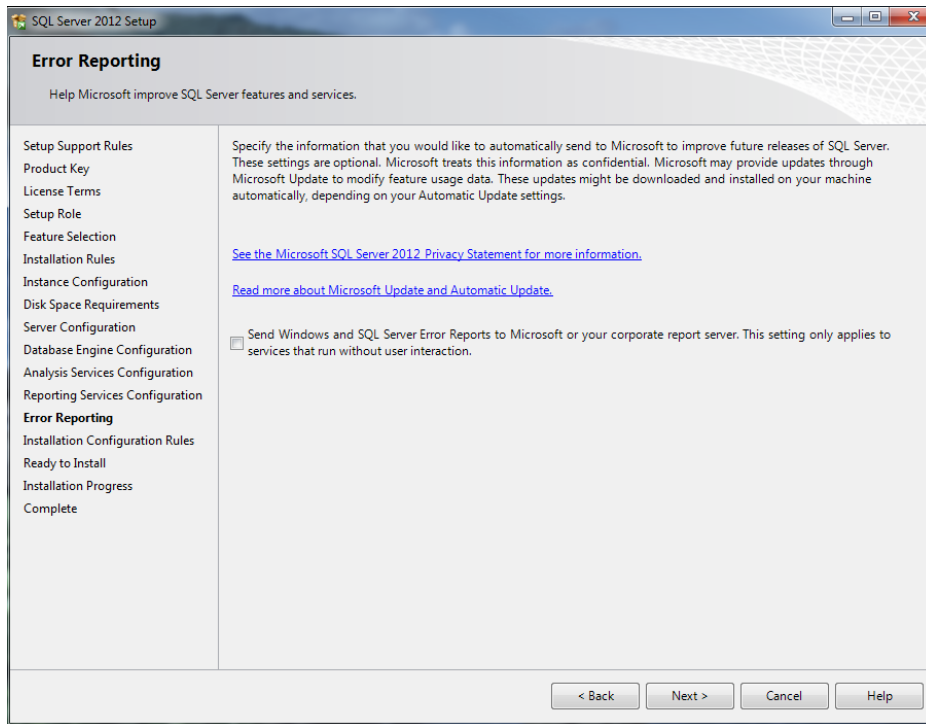
If you have selected Analysis Services component (i.e. for CS699 or CS779) you will be presented with the following screen.

- Select the Multidimensional and Data Mining Mode
- Click Add Current User
- Click Next

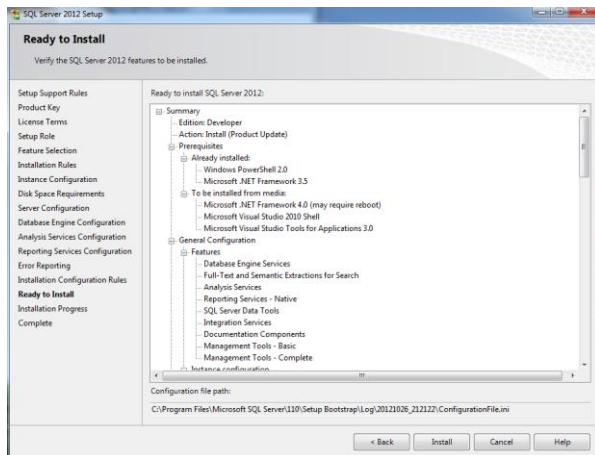


16. Error Reporting, Installation Configuration Rules, & Ready to Install

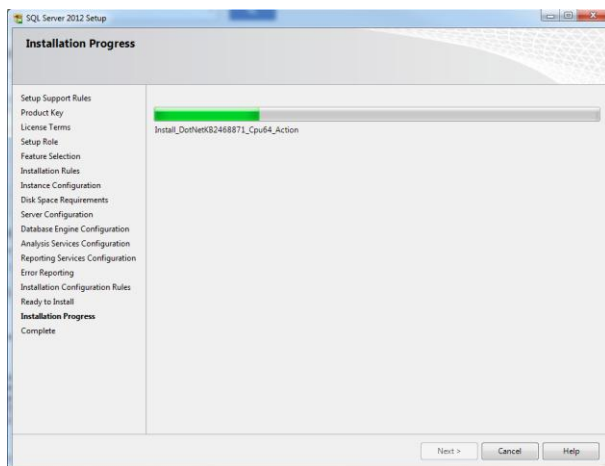
17. Click Next through the next two screens It is up to you to select Error and Usage Reporting, click next.



- Review selected features and click *Install*, Installation will begin, this will take some time.



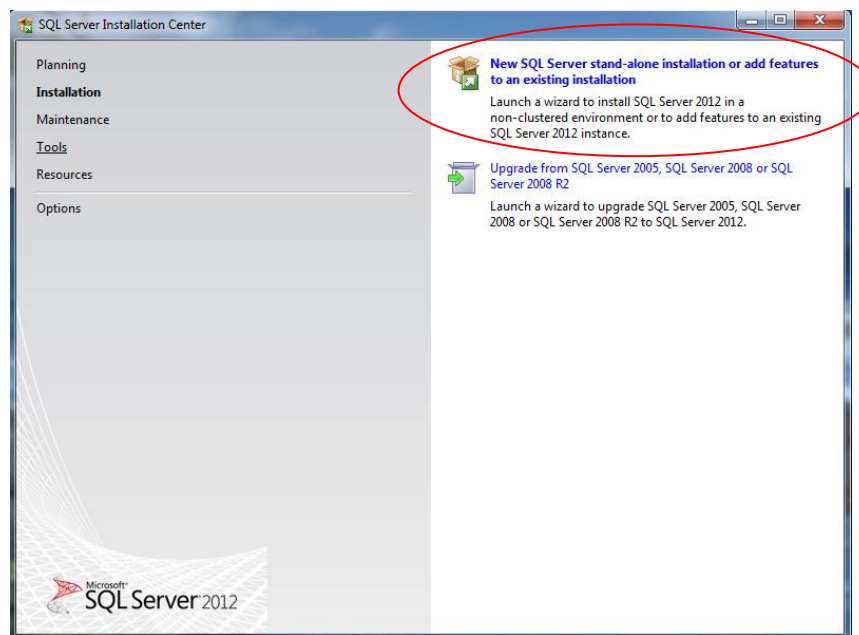
- This will take some time



- Once the installation is complete, if available run a service pack installation. You can check if the latest service pack is available from the SQL Server web site.

Installing SQL Server 2012 Express Edition

1. Please note that the Express Edition is only suggested for CS669. It is not recommended for CS699 or CS779.
2. Run SQLEXPRT_x64_ENU or SQLEXPRT_x32_ENU file which you have downloaded from Microsoft to start the setup of SQL Server Express 2012. The setup program will initiate the setup which may take several minutes.
3. Once the SQL Server Installation Center launches choose **New SQL Server New SQL Server stand-alone installation**, but other options are available, for example if you have SQL Server 2005 or 2008 installed, you have an option to update to the 2012 version.



4. On the License Terms page, check the box next to “*I accept the license terms*” and click *Next*.
5. Setup will check and if needed install Setup Support Files. Click *OK* when complete.
6. **Feature installation:** Select the components of SQL server to install on your computer.
 - **Minimum Required Features List for CS 669**

You will need to choose at least two of these feature components in order to use SQL Server for CS669.

 - Database Engine Services
 - Management Tools- Basic
 - **Detailed Explanations:**
 - a. Instance Features:
 - i. Database Engine Services: This installs SQL Server engine (the core service for storing, processing and security data) on your system. **-Required**
 - ii. SQL Server Replication: Allows for having synchronized copies of the data in two different locations. For example, this can be used in data distribution, synchronization, load balancing and disaster recovery.

- b. Shared Features:
 - i. Management Tools Basic: You will need this to work with SQL server. This is the GUI interface that includes components such as the GUI Query interface as well as components for advanced topics such as integration services as well as the database tuning advisor. **-Required**
- c. SQL Client Connectivity SDK: Additional Software Development Kit with recourses for developers.
- d. LocalDB: A lightweight version of the SQL Server Express Database Engine that has the same programmability features, yet starts on demand and runs in user mode. It is an execution mode of SQL Server Express targeted to program developers.
- e. Shared Features Directory: Note the paths where SQL server will install the shared components (default is Program Files folder within C drive.)

Feature Selection

Select the Express features to install.

Setup Support Rules
Feature Selection
 Installation Rules
 Instance Configuration
 Disk Space Requirements
 Server Configuration
 Database Engine Configuration
 Error Reporting
 Installation Configuration Rules
 Installation Progress
 Complete

Features:

Instance Features

- ☒ Database Engine Services
- ☒ SQL Server Replication

Shared Features

- ☒ Management Tools - Basic
- ☒ SQL Client Connectivity SDK
- ☐ LocalDB

Redistributable Features

Feature description:

The configuration and operation of each instance feature of a SQL Server instance is isolated from other SQL Server instances. SQL Server instances can operate side-by-side on the same computer.

Prerequisites for selected features:

Already installed:

- Windows PowerShell 2.0
- Microsoft .NET Framework 3.5

To be installed from media:

- Microsoft Visual Studio 2010 Shell

To be installed from internet:

Select All Unselect All

Shared feature directory: C:\Program Files\Microsoft SQL Server\

Shared feature directory (x86): C:\Program Files (x86)\Microsoft SQL Server\

< Back Next > Cancel Help

7. Instance Configuration

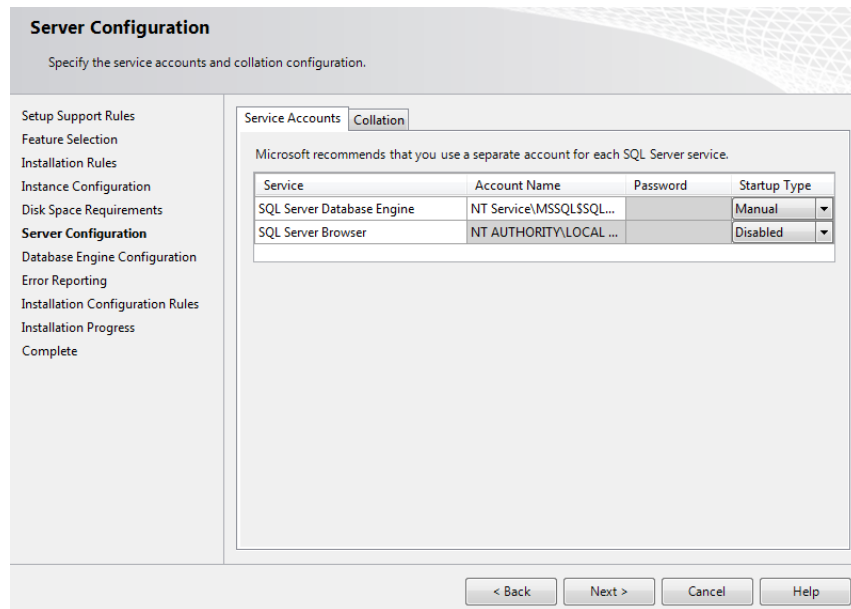
- a. Generally you can leave the Default Instance. The Named instances would be used if you want to create multiple instances of SQL Server on the same machine. If you are installing SQL Server for CS779 this might be a worthy topic to explore for the term project.
- b. Choose the installation path for SQL Server (default is Program Files folder within C drive.)

The screenshot shows the 'Instance Configuration' window of the SQL Server Setup. The left sidebar contains a list of steps: Setup Support Rules, Feature Selection, Installation Rules, **Instance Configuration** (highlighted), Disk Space Requirements, Server Configuration, Database Engine Configuration, Error Reporting, Installation Configuration Rules, Installation Progress, and Complete. The main area is titled 'Specify the name and instanceID for the instance of SQL Server. Instance ID becomes part of the installation path.' It has two radio buttons: 'Default instance' and 'Named instance:'. The 'Named instance' option is selected, and the text 'SQLExpress' is entered in the adjacent field. Below this, there are three text boxes: 'Instance ID:' with 'SQLEXPRESS', 'Instance root directory:' with 'C:\Program Files\Microsoft SQL Server\' (followed by a browse button), and 'SQL Server directory:' with 'C:\Program Files\Microsoft SQL Server\MSSQL11.SQLEXPRESS'. At the bottom, there is a section 'Installed instances:' followed by a table with columns: Instance Name, Instance ID, Features, Edition, and Version. The table is currently empty. At the very bottom of the window are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

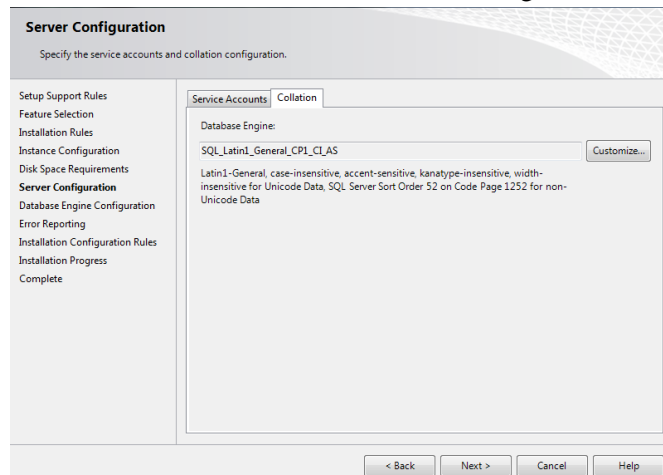
Instance Name	Instance ID	Features	Edition	Version
---------------	-------------	----------	---------	---------

8. Review the Disk Space Requirements and click next if prompted.

9. Under **Server Configuration** set SQL Server Database Engine to Manual (unless you want it to run all the time with your system which will use up a lot of system resources when you are not using the Sql Server). These are services that run components of SQL Server.
 - a. You will need **SQL Server Database Engine** to run SQL Server. Since DBMS uses a lot of system resources, we would recommend running it manually when you need it.
 - b. SQL Server Browser can be left disabled.
 - c. The Account Name for all SQL Server Services should be set to default, **NT Service\MSSQL\$SQLEXPRESS**. This will allow the services to run with a system account.



- d. Check the collation tab at the top. For our purposes this can be left at default **SQL_Latin1_General_CP1_CI_AS** which is Latin1-General case insensitive. This drives how SQL server recognizes commands, for example you can choose a different language or set it to be case sensitive. Some applications require for you to choose a specific collation. You can click *Customize* to change it.



10. Database Engine Configuration

- a. Account Provisioning:
 - i. Choose the authentication mode for the system. Windows authentication will use your windows account privileges to connect to SQL Server. **We highly recommend using Mixed Mode** so that there is an additional built in SA account with a separate user name and password as well as your built in windows account.
 - ii. **Make sure to add users (such as your account) to SQL Server Administrators (click on Add Current User) if it is not already there.**
 - iii. These accounts will allow you to log into SQL Server.
 - iv. Note that the server itself does not need these accounts and runs as a service which you specified in previous step.
- b. You can leave Data Directories to defaults. Data Directories can be changed if you have a multiple disk environment and for performance want to separate out where different parts of the DBMS go. For example, in production environments the LOG components should go on a separate disk array, which will improve performance of the system.
- c. If you are installing SQL Server for CS779 you might want to enable FILESTREAM if you plan to explore large file types such as Binary language objects (BLOB)

Database Engine Configuration

Specify Database Engine authentication security mode, administrators and data directories.

Setup Support Rules
Setup Role
Feature Selection
Installation Rules
Instance Configuration
Disk Space Requirements
Server Configuration
Database Engine Configuration
Error Reporting
Installation Configuration Rules
Ready to Install
Installation Progress
Complete

Server Configuration | Data Directories | FILESTREAM

Specify the authentication mode and administrators for the Database Engine.

Authentication Mode

☐ Windows authentication mode

☒ Mixed Mode (SQL Server authentication and Windows authentication)

Specify the password for the SQL Server system administrator (sa) account.

Enter password:

Confirm password:

Specify SQL Server administrators

JackPolnar-PC\Jack Polnar (Jack Polnar)

SQL Server administrators have unrestricted access to the Database Engine.

Add Current User Add... Remove

< Back Next > Cancel Help

11. It is up to you to select Error and Usage Reporting, click next.
12. Click Next after Setup verifies Installation and Configuration Rules.
13. Review selected features and click *Install*, Installation will begin, this will take some time.
14. Once the installation is complete, if available run a service pack installation. You can check if the latest service pack is available from the SQL Server web site.

Installing Service Packs

1. Check the SQL Server web site if the latest service pack is available for your version of SQL Server: <http://www.microsoft.com/sqlserver/en/us/default.aspx>
2. Start the Service Pack Installer after you download it.
3. Agree to the License Terms
4. Confirm the Installed Features (this is what you installed earlier)
5. Check File Use, if some components of SQL Server are running the system will shut them down/reboot as part of the install. Make sure to wait for the check to complete before clicking Next.
6. Ready to Update will confirm what will be updated. – Click on Update to start the process.

You are now ready to use SQL Server.

Working with SQL Server

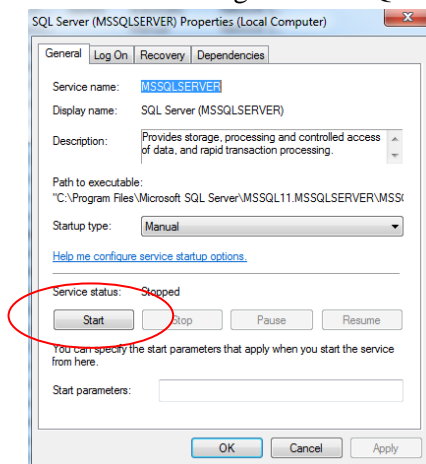
Starting & Stopping SQL Server (optional)

If during setup you selected for SQL Server to start manually then you will need to go to the Windows Control Panel->Administrative Tools->Services

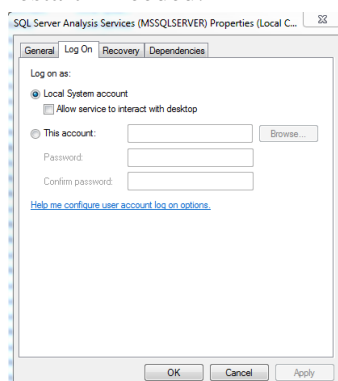
- Services for SQL Server Developer.

Service Name	Description	Startup Type	Log On As
SQL Server (MSSQLSERVER)	Provides sto...	Manual	NT Service...
SQL Server Agent (MSSQLSERVER)	Executes jo...	Manual	NT Service...
SQL Server Browser	Provides SQ...	Disabled	Local Service
SQL Server Integration Services 11.0	Provides m...	Manual	NT Service...

- Start the following service: SQL Server (Instance Name)



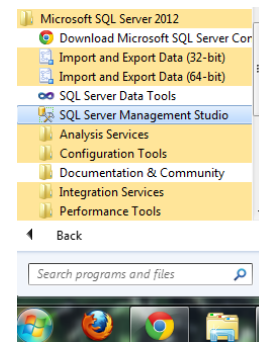
- For CS699, review that SQL Server Analysis Services is using the local account.
 1. Double click on SQL Server Analysis Services.
 2. Go to the Log On Tab and choose Local System Account. Click Ok, service will restart if needed.



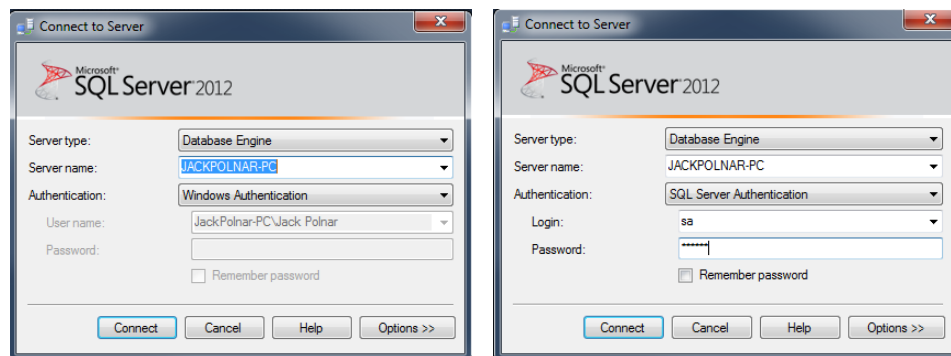
- Note that when you are no longer using SQL Server you can shut the service down to save on system resources.
- You can also change the startup type to be automatic while the course is running to save you the step of turning this on and off.
- You may want to put the services shortcut to your desktop for quick access

Logging into SQL Server using SQL Server Management Studio

- To work with SQL Server you will use the SQL Server Management Studio. You will find it under Microsoft SQL Server 2012 program group.
- You may want to put the SQL Server Management Studio shortcut to your desktop or pin it to the Windows Task bar for quicker access.



- In the Connect to Server dialog box:
 - Server Type: Database Engine (default)
 - Server Name: This is your system name (default).
 - Tip: If you forget your system name, you can use a single period “.” If you are connecting to the server instance on the same machine that you are working on.
 - Authentication: Use
 - Windows Authentication (default) and your account
 - OR
 - The SQL Server Authentication with Login: SA and password which you created during the install and click *Connect*.



- If you are not able to log in with any accounts, it might be easiest to re-install SQL Server and closely pay attention to Account Provisioning section within the Database Engine Configuration part of the installation.

Using SQL Server Management Studio

Once you connect to SQL Server Instance you can begin to create a database, write queries, or explore the database. Below is a very quick overview of the SQL Server Management Studio Interface to get you started.



Saves your SQL commands as .SQL files.



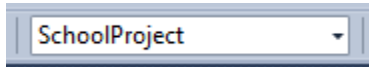
New Query

Creates a new query window for you to type your SQL commands.

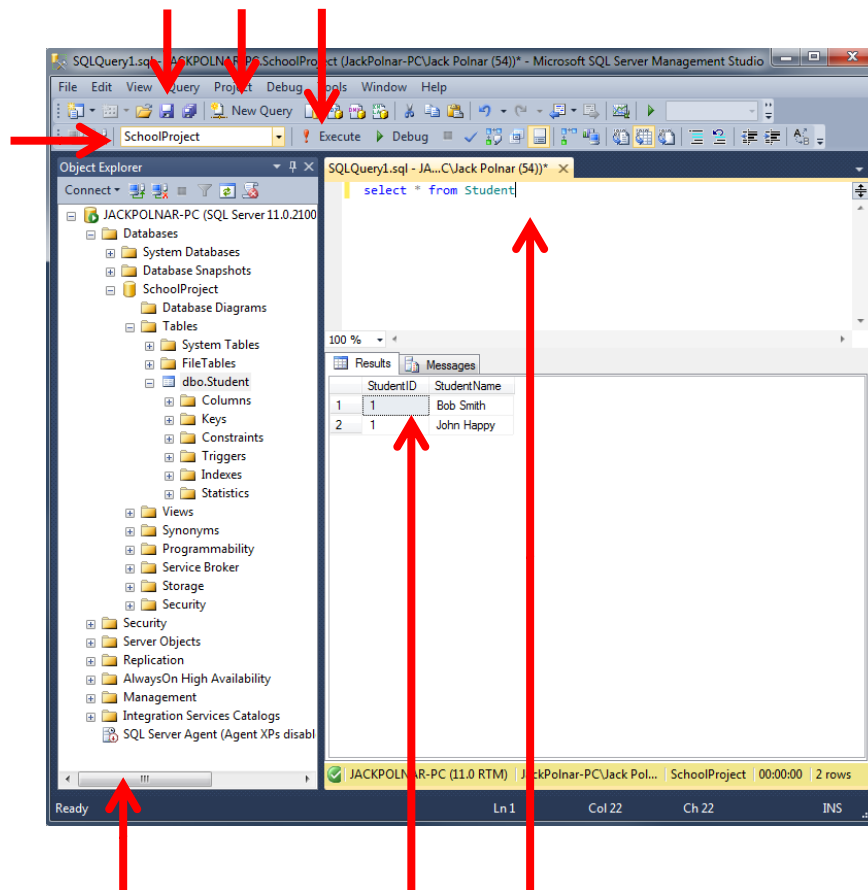


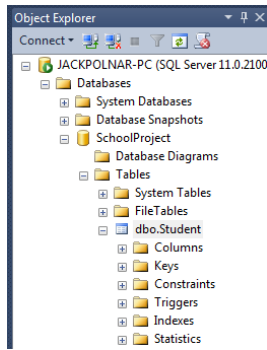
Execute

Runs your SQL commands.

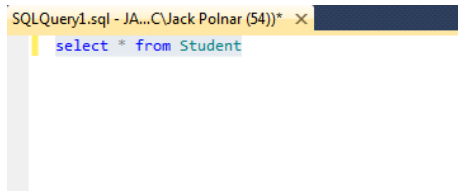


Dropdown to select the database you are working with. Make sure not to work in the master database.

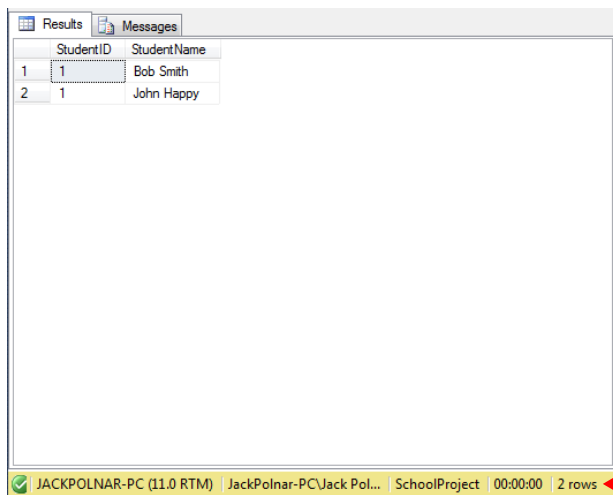




Object Explorer allows you to browse databases, tables, columns and other objects within the database.



Query window where you can type in your SQL query commands.



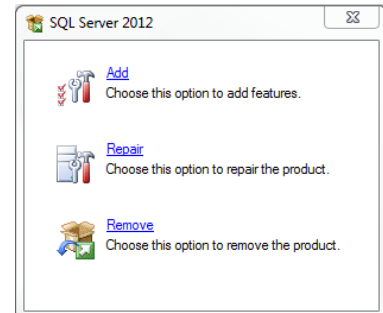
SQL Query results. Note how the execution time and number of rows are at the bottom.

Uninstall SQL Server or Change Features

If you no longer need to use SQL Server, or would like to re-install it or change feature, you can use these steps to uninstall SQL Server from your system.

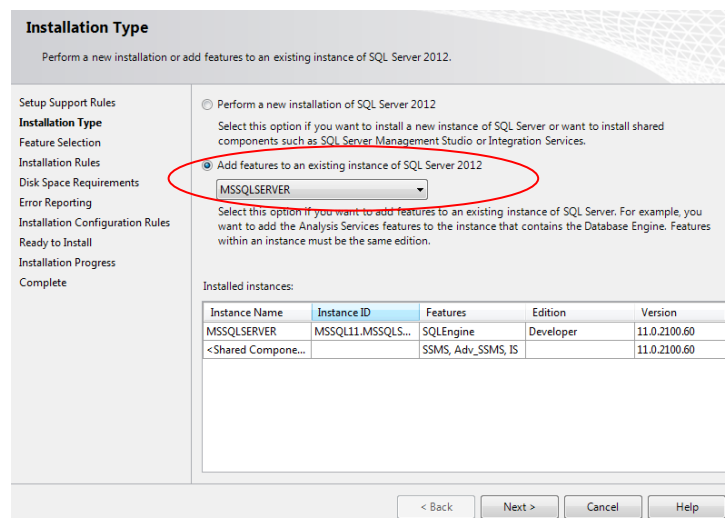
Uninstalling SQL Server

1. Go to Windows Control Panel->Programs and Features
2. Sort program list by name.
3. Look for Microsoft SQL Server 2012 (64-bit or 32-bit) and double click on it.
4. Choose *Remove*.
5. SQL Server will gather information that it needs to perform the uninstall. This will take some time.
6. When prompted to **Select Instance**, choose defaults and click *Next*.
7. When prompted to **Select Features**, *Select All* and click *Next*.
8. **Removal Rules** will process, click *Next*.
9. **Ready to Remove** will give you a summary, click *Remove*.
10. Once finished SQL Server is removed. You may want to review Windows Control Panel->Programs and Features to make sure no components have been left behind, but be careful not to remove any Windows SQL Server components such as Windows Compact Edition. If you are not sure, you can leave these as is.



Change SQL Server Features and Components

1. Go to Windows Control Panel->Programs and Features
2. Sort program list by name.
3. Look for Microsoft SQL Server 2012 (64-bit or 32-bit) and double click on it.
4. Choose *Add*.
5. You may be prompted to select the SQL Server media location. (i.e. your DVD drive)
6. SQL Server will gather information that it needs to modify components and check Install Setup files. This will take some time. Click *Ok* or *Next* when prompted.
7. When prompted to **Select Instance**, choose *Add features to an existing instance of SQL Server 2012* and click *Next*



8. When prompted for **Feature Selection**, review and update features, review Feature list in the installation instructions in previous sections, and click *Next*.
9. You will be prompted to verify Installation Rules, Disk Space Requirements, Error Reporting, and Installation Configuration Rules, click *Next*.
10. **Ready to Install** will give you a summary, click *Install*.