SQL Server 2012:
Installation and Configuration

Module 5: Post-Installation Configuration Tasks for SQL Server 2012

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Introduction

- How SQL Server 2012 is updated
- The importance of updating SQL Server 2012
- Obtaining SQL Server 2012 Service Packs
- Installing SQL Server 2012 Service Packs
- Obtaining SQL Server 2012 Cumulative Updates
- Installing SQL Server 2012 Cumulative Updates
- Setting instance properties with SSMS
- Setting instance properties with T-SQL
- Configuring tempdb files

How SQL Server 2012 Is Updated

- **Microsoft has three primary ways to update SQL Server**
  - Hotfixes
  - Cumulative Updates (CU)
  - Service Packs (SP)
- **Hotfixes are designed to fix one specific defect**
  - You must contact Microsoft Support (CSS) to get a hotfix
- **Cumulative Updates are rollups of hotfixes (10-50 defects)**
  - They are released every eight weeks, and are not fully regression tested
  - You must request and download CUs from Microsoft
- **Service Packs are designed to fix a larger number of defects**
  - They are released about every 12 months
  - They are fully regression tested
  - You can manually download Service Packs
  - They are also available from Microsoft Update
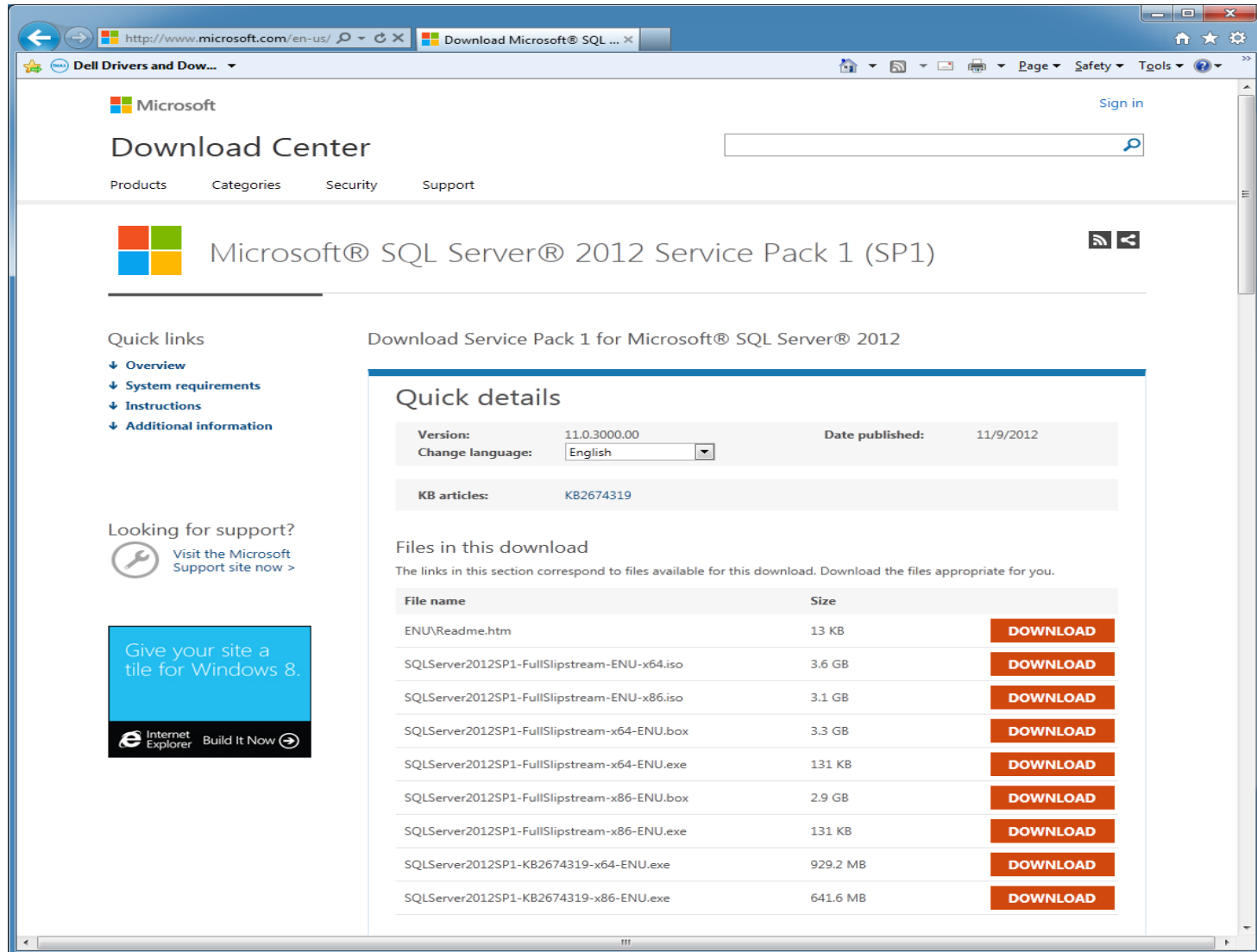
Optional Update in Microsoft Update
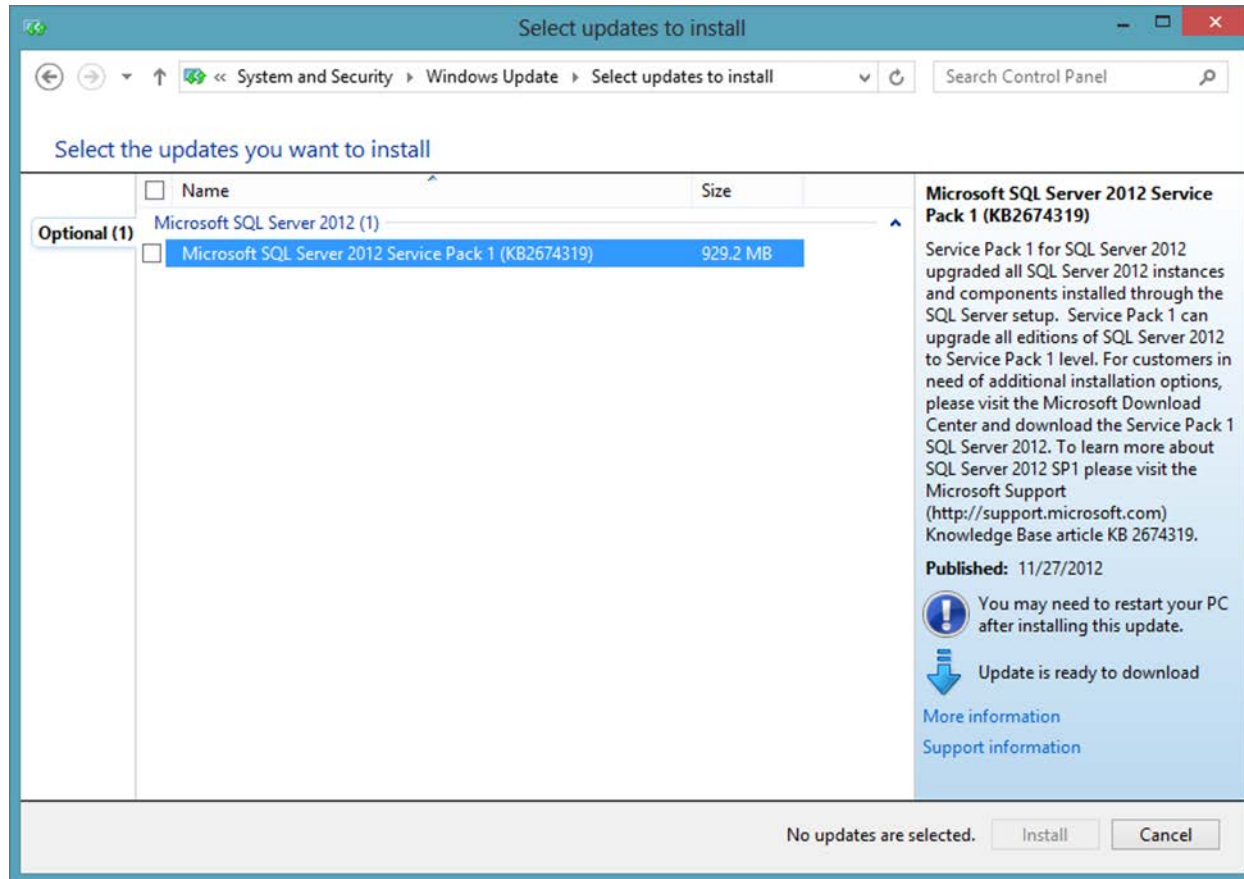
The Importance of Updating SQL Server 2012

- **SQL Server Service Packs are required in order to stay in a fully supported configuration**
- **Microsoft "retires" branches of code after certain milestones**
  - RTM branch is retired one year after SP1 is released
  - SP1 branch is retired one year after SP2 is released
- **If you are on a "retired" branch, you will get limited CSS support**
  - Basic troubleshooting until you upgrade to a supported Service Pack
- **Service Packs and Cumulative Updates fix many defects**
  - You are less likely to run into problems if you stay up-to-date
  - You should test Service Packs and Cumulative Updates
    - Testing and applying SPs and CUs is good practice for your organization
    - It forces you to exercise your testing and high-availability plans and infrastructure

Obtaining SQL Server 2012 Service Packs

- **Use this Microsoft Knowledge Base article to find the latest SP**
  - http://bit.ly/R1VRdQ
- **You can also use your favorite search engine**
  - There is a separate download for SQL Server 2012 Express Edition
  - There are now separate, full slipstream installs for SQL Server 2012
- **Make sure to download the correct Service Pack version**
  - Run SELECT @@VERSION to check the version on your instance
  - x64 is 64-bit version for Intel/AMD systems
    - Most servers should be using this version
  - x86 is 32-bit version for Intel/AMD systems
    - Most useful for older workstations and legacy support
    - You should not run the x86 version on a brand new server

SQL Server 2012 Service Pack 1

Installing SQL Server 2012 Service Packs

- **Confirm that you have the right version of the Service Pack**
  - x64 or x86, Express Edition or not, full slipstream or not
- **Read the release notes**
  - SQL Server 2012 SP1 http://bit.ly/RIDRDb
- **Schedule the installation during a maintenance window**
  - You can use a rolling upgrade technique to minimize downtime
    - You must have some high-availability technology in place to do this
- **Don't have any pending reboots of Windows**
  - The setup program will prevent the installation from running if you do
- **Don't have SQL Server Management Studio running locally**
  - This decreases the chance of the Service Pack requiring a reboot

Obtaining SQL Server 2012 Cumulative Updates

- **Use these Microsoft KB articles to find the latest CU**
  - The SQL Server 2012 builds that were released after SQL Server 2012 was released
    - http://bit.ly/lmox6j
  - The SQL Server 2012 builds that were released after SQL Server 2012 Service Pack 1 was released
    - http://bit.ly/SHe25n
- **You must obtain the latest CU for your branch of the code**
  - Examples
    - Release to Manufacturing (RTM) branch
    - Service Pack 1 (SP1) branch
  - An RTM branch CU will not work on an instance that has SP1 installed
  - An x86 CU will not work on an x64 instance of SQL Server

Requesting a Specific Cumulative Update

- **After you have identified the correct CU, you must request it from Microsoft from a link in a KB article**
  - Example: SQL Server 2012 SP1 CU1
    - http://bit.ly/UTClRI
- **You must select the correct CU package**
  - This can be somewhat confusing
- **You also must request the CU package from the web page**
  - You give Microsoft a valid e-mail address and they will send you a link
- **You must enter a CAPTCHA code**
  - These are sometimes difficult to read
- **You will receive an e-mail with a download link in a few minutes**
  - You must download and extract the CU installation file

Requesting a Cumulative Update

Installing a SQL Server 2012 Cumulative Update

- **After you have extracted the CU setup file you can run it**
- **Schedule the installation during a maintenance window**
    - You can use a rolling upgrade technique to minimize downtime
        - You must have some HA technology in place to do this
- **Don't have any pending reboots of Windows**
    - The setup program will prevent the installation from running if you do
- **Don't have SQL Server Management Studio running locally**
    - This decreases the chance of the CU requiring a reboot
- **Cumulative Updates usually install faster than Service Packs**
    - Installation time depends on your hardware and what SQL Server features are installed on the instance

SQL Server 2012 Cumulative Update
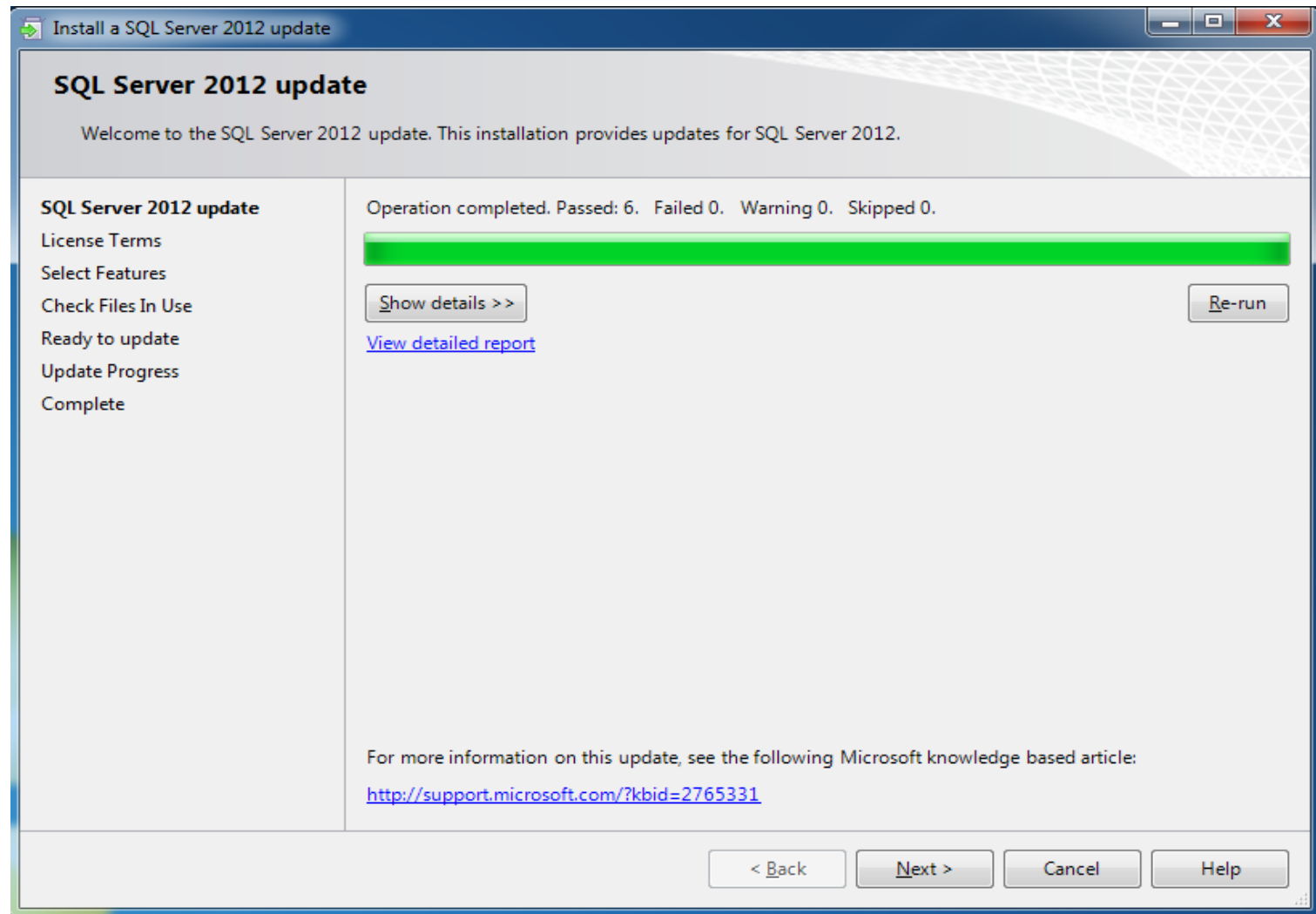
Install the Latest Service Pack and CU

- **For a brand new instance, you should install the latest SQL Server 2012 Service Pack and Cumulative Update**
  - You do not want to be running the original RTM build in Production
- **It will require some sort of outage to install them after you are in Production**
  - It is better to install them now and fully test your applications before you go into Production
  - You may not be able to easily install those updates later

Setting Instance Properties with SSMS

- **You can right-click on the instance in Object Explorer**
  - Select Properties
- **This will open the Server Properties dialog**
  - There are eight properties pages (shown in the left-hand pane)
- **You can make a change and then use the Script button**
  - This is much safer than simply clicking the OK button
  - It will also help you learn the T-SQL commands to change properties
  - It will save you the time and trouble of typing T-SQL code
    - This will prevent many syntax mistakes

Server Properties - Memory
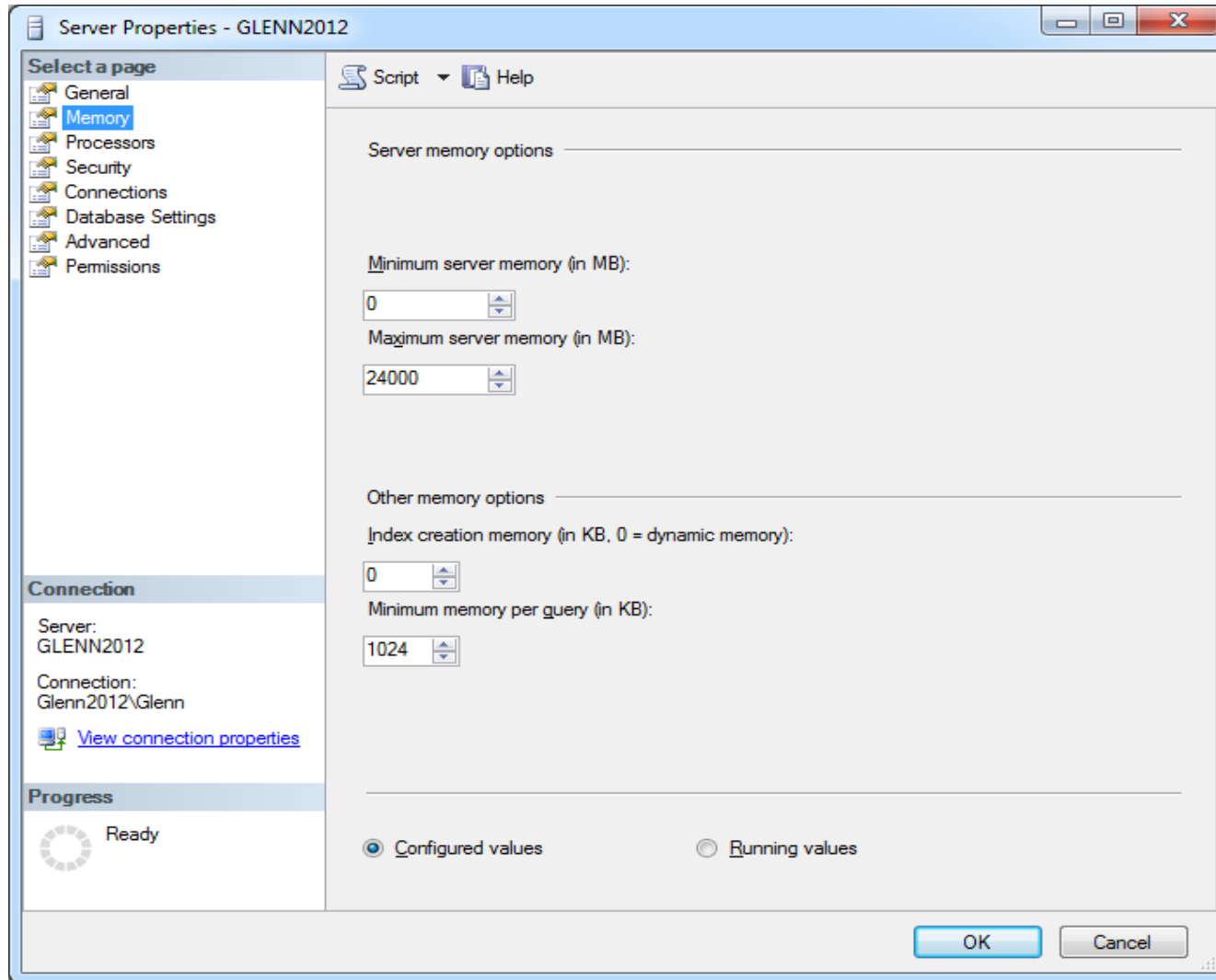
Server Properties - Processors
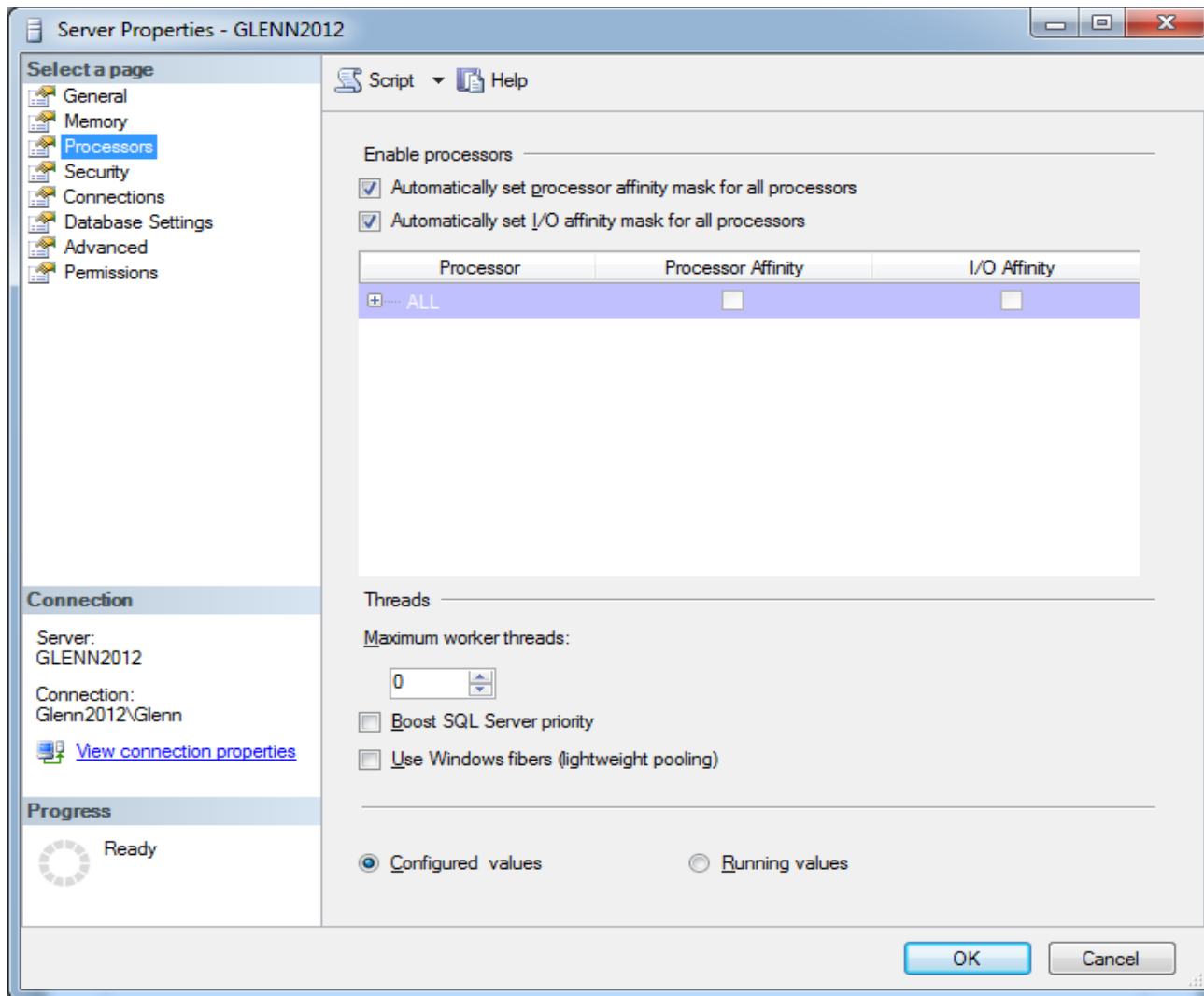
Server Properties – Database Settings
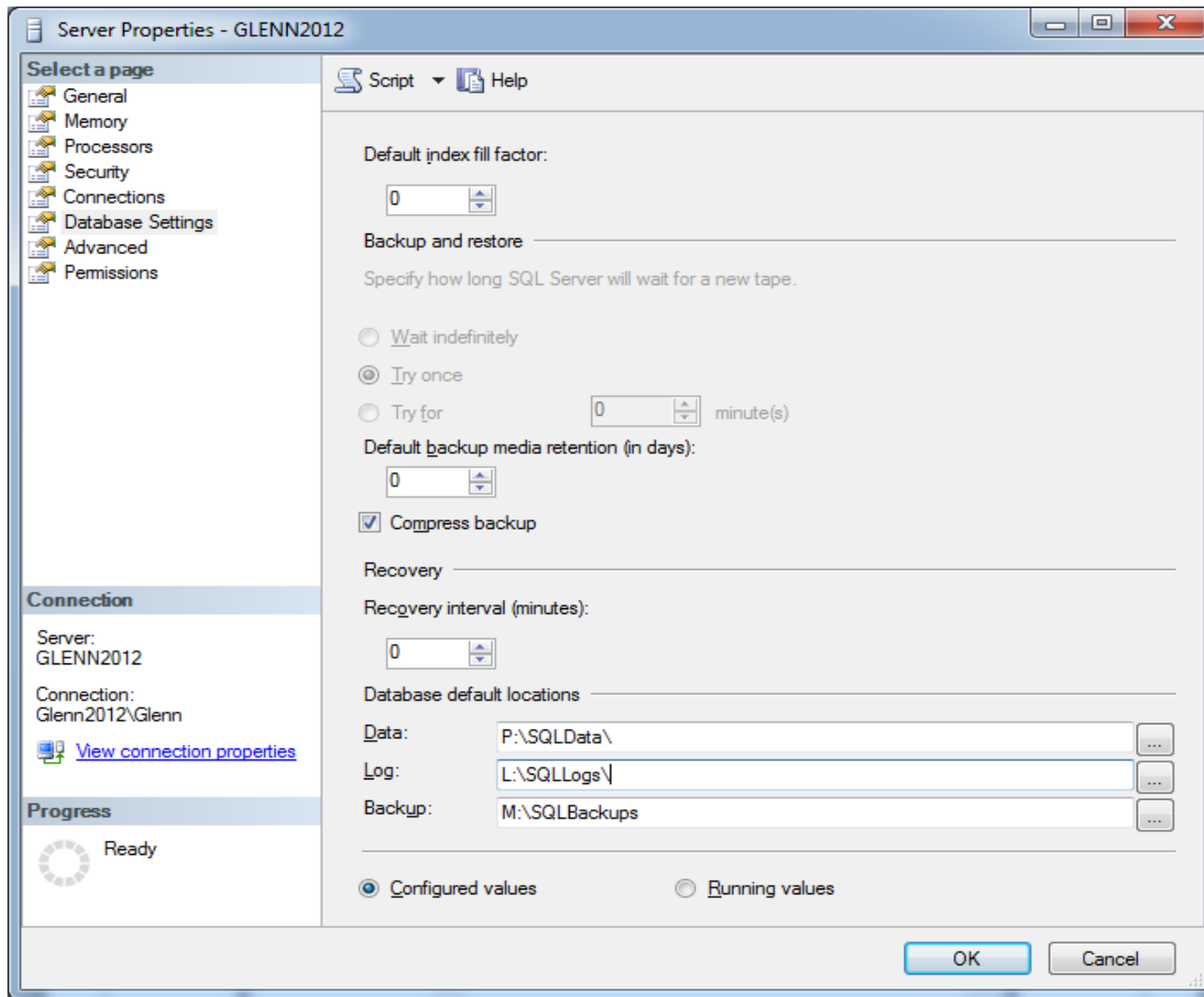
Server Properties - Advanced
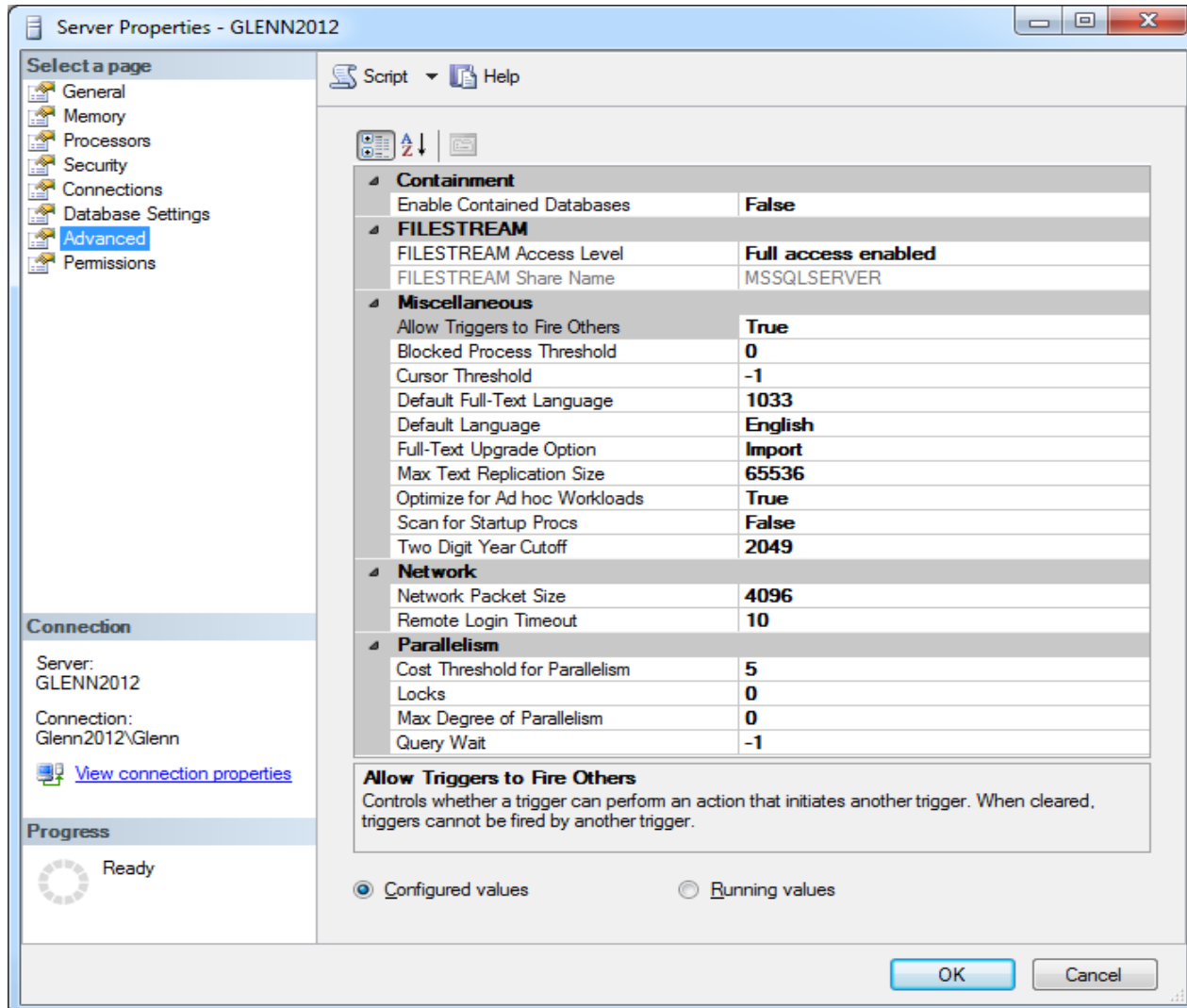
Setting Instance Properties with T-SQL

Configuring tempdb Files

- **SQL Server 2012 only has one very small tempdb data file**
- **It is a common best practice to create additional data files to reduce the chances of seeing PAGELATCH contention in tempdb**
  - These additional data files can all be on the same LUN
  - They should all be the same initial size
- **Good starting point for number of tempdb data files**
  - Less than eight processor cores: # of files = # of cores
  - More than eight processor cores: Start with eight tempdb data files
    - Monitor tempdb for signs of PAGELATCH contention
    - Add more tempdb files in groups of four if contention exists
  - See this Jonathan Keheyias article for more details
    - http://bit.ly/NKs6c3

Summary

- **It is important to maintain your SQL Server instance**
    - Service Packs
    - Cumulative Updates
    - Hotfixes
- **This makes the instance easier to maintain in the future**
- **Selected instance level settings should be changed**
    - Optimize for ad hoc workloads
    - Max server memory
    - Default backup compression
- **Additional tempdb data files should be added**
    - Use my guidance for the number of data files to start with

What is Next?

- **Module 6 will cover automating common maintenance tasks for SQL Server 2012**
  - Confirming network connectivity
  - Confirming SQL Server connectivity
  - Enabling Database Mail
  - Creating a New SQL Server Operator
  - Setting up SQL Server Agent Alerts
  - Adding Ola Hallengren's Maintenance Solution
  - Configuring the Maintenance Solution