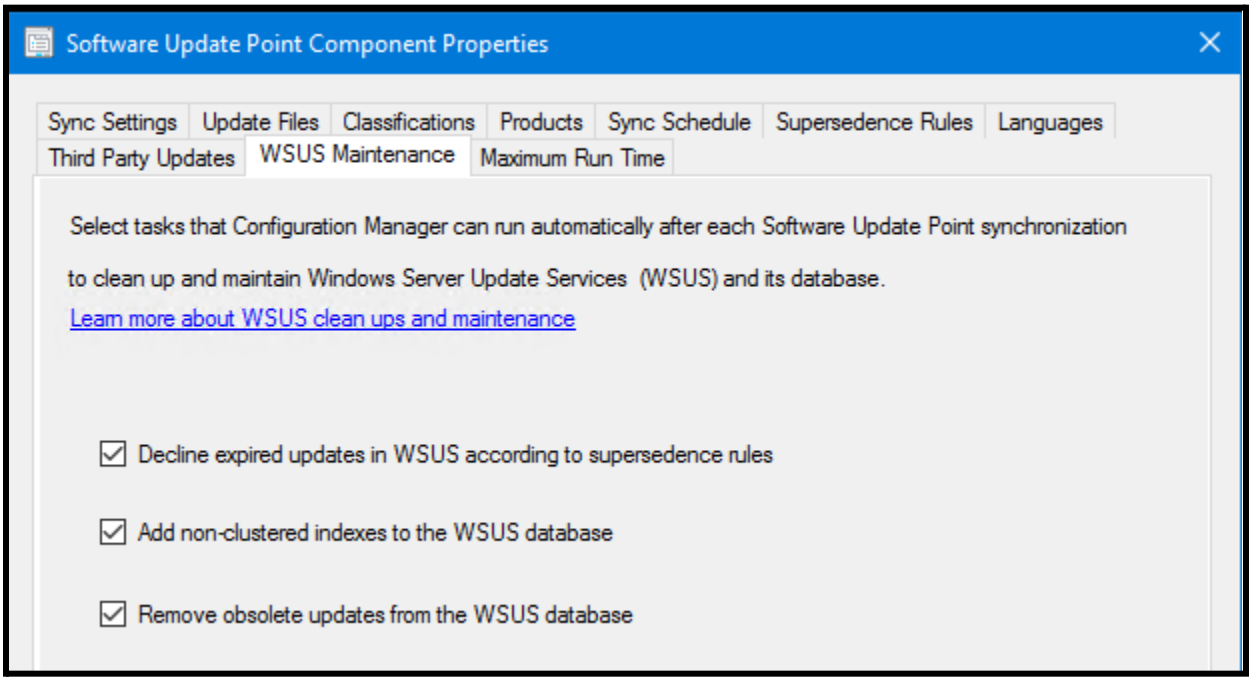
Windows Server Update Services (WSUS)

Windows Server Update Services (WSUS) provides a way for IT administrators to **deploy the latest Microsoft product updates**. We can use WSUS to fully **manage the distribution of updates** that are released through Microsoft Update to computers on your network.
A WSUS server provides features that we can use to **manage and distribute updates through a management console**. A WSUS server can also be the **update source** for other WSUS servers within the organization. The WSUS server that acts as an update source is called an **upstream server**. In a WSUS implementation, **at least one WSUS server** on your network must be **able to connect to Microsoft Update** to get available update information. As an administrator, we can determine based on **network security and configuration** how many other WSUS servers connect directly to Microsoft Update.

- **Maintain WSUS while supporting Configuration Manager current branch version 1906 and later versions**

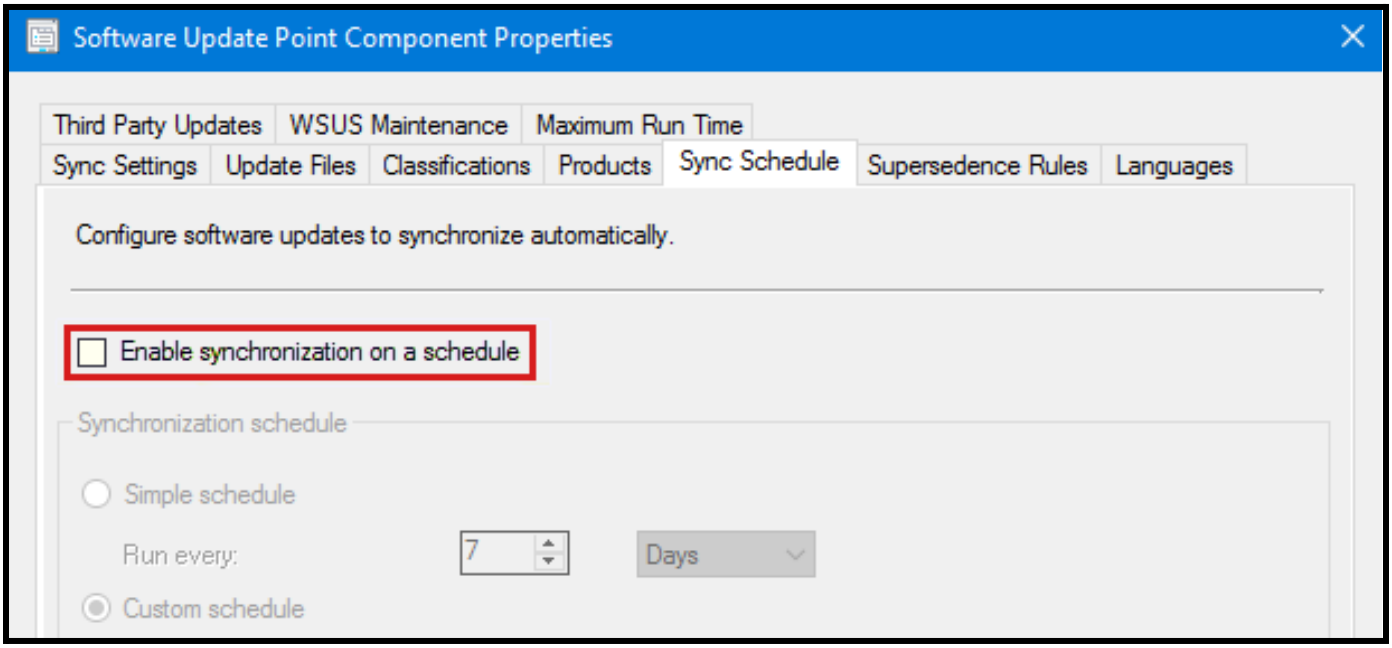
  Step 1: If we are using Configuration Manager current branch version 1906 or later versions, we should enable the WSUS Maintenance options in the software update point configuration to automate the cleanup procedures after each synchronization.



Step 2: When we are using WSUS along with downstream servers, WSUS servers are added from the top down but they should be removed from the bottom up. When syncing or adding updates they go to the upstream WSUS server first then replicate down to the downstream servers. When performing a cleanup and removing items from WSUS servers we should start at the bottom of the hierarchy.

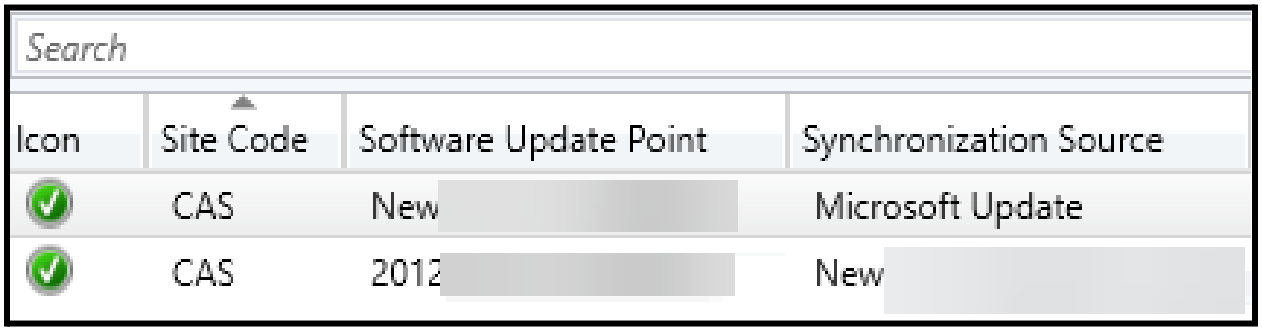
Step 3: WSUS maintenance can be performed simultaneously on multiple servers in the same tier. When doing so we should ensure that one tier is done before moving onto the next one. The cleanup and reindex steps should be run on all WSUS servers regardless of whether they are a replica WSUS server or not.

Step 4: Ensure that SUPs don't sync during the maintenance process as it may cause a loss of some work already done. Check the SUP sync schedule and temporarily set it to manual during this process.



Step 5: If we have multiple SUPs of the primary site or central administration site (CAS) which don't share the SUSDB, consider the WSUS server that syncs with the first SUP on the site.
For example, we have two SUPs:

1) The one named New syncs with Microsoft Update, it would be my top tier i.e. Tier1.
2) The server named 2012 syncs with New and it would be considered in the second tier i.e. Tier2.



❖ Perform WSUS Maintenance

The basic steps necessary for proper WSUS maintenance include:

1) Back up the WSUS database
2) Create custom indexes
3) Reindex the WSUS database
4) Decline superseded updates
5) Run the WSUS Server Cleanup Wizard

1) Back up the WSUS database

We can back up the WSUS database (SUSDB) by using the desired method. These are few recommendations:

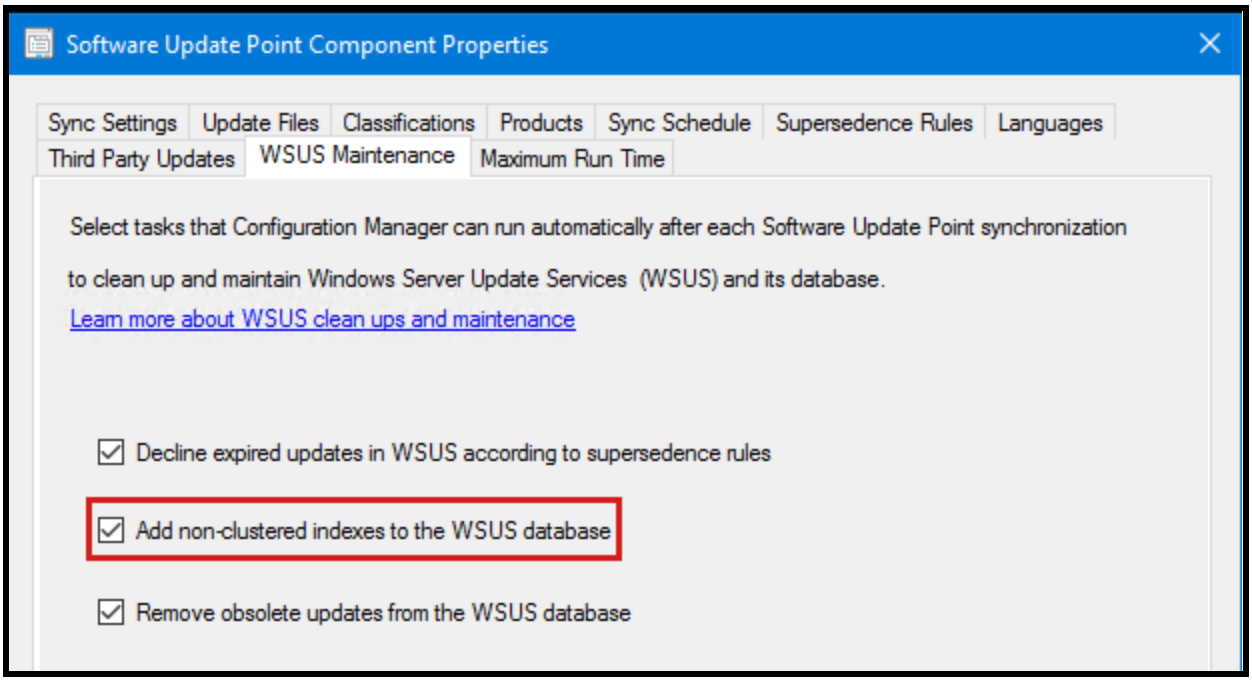
- As a database increases in size, full database backups take more time to complete and require more storage space. For large databases, consider full database backups with a series of **differential database backups**.
- Estimate the size of a full database backup by using the **sp_spaceused** system stored procedure.
- By default, every successful backup operation adds an entry in the SQL Server error log and in the system event log. If we back up frequently, success messages will accumulate quickly, resulting in huge error logs, making finding other messages difficult. In such cases, we can suppress these backup log entries by using **trace flag 3226** if none of our scripts depend on those entries.

But there are few limitations and restrictions to it as well.
The limitations are as followed:

- The **BACKUP** statement isn't allowed in an explicit or implicit transaction.
- Backups created by a more recent version of SQL Server can't be **restored** in earlier versions of SQL Server.

2) Create custom indexes

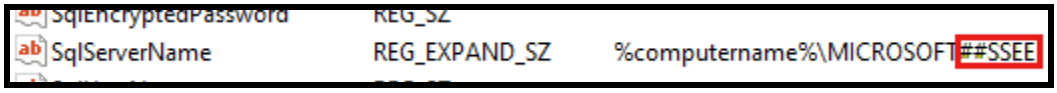
This process greatly **improves performance during subsequent cleanup operations**. If we are using Configuration Manager current branch version 1906 or a later version, then we use Configuration Manager to create the indexes. To create the indexes, configure the **Add non-clustered indexes to the WSUS database** option in the software update point configuration.

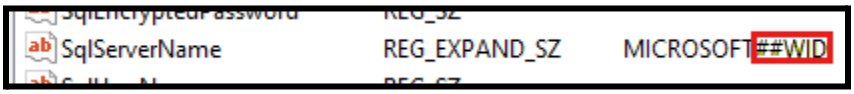


3) Reindex the WSUS database

The steps to connect to SUSDB and perform the reindex differ depending on whether SUSDB is running in **SQL Server** or **Windows Internal Database (WID)**. To determine where SUSDB is running, check the value of the **SQLServerName** registry entry on the WSUS server located at the **HKEY_LOCAL_MACHINE\Software\Microsoft\Update Services\Server\Setup** subkey.

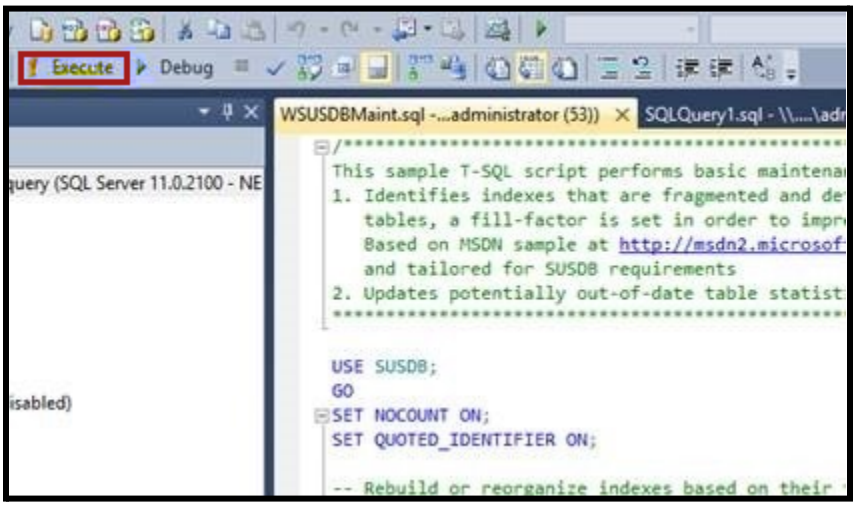
If the value contains just the **server name** or **server\instance**, **SUSDB is running on a SQL Server**. If the value includes the string **##SSEE** or **##WID** in it, **SUSDB is running in WID**.

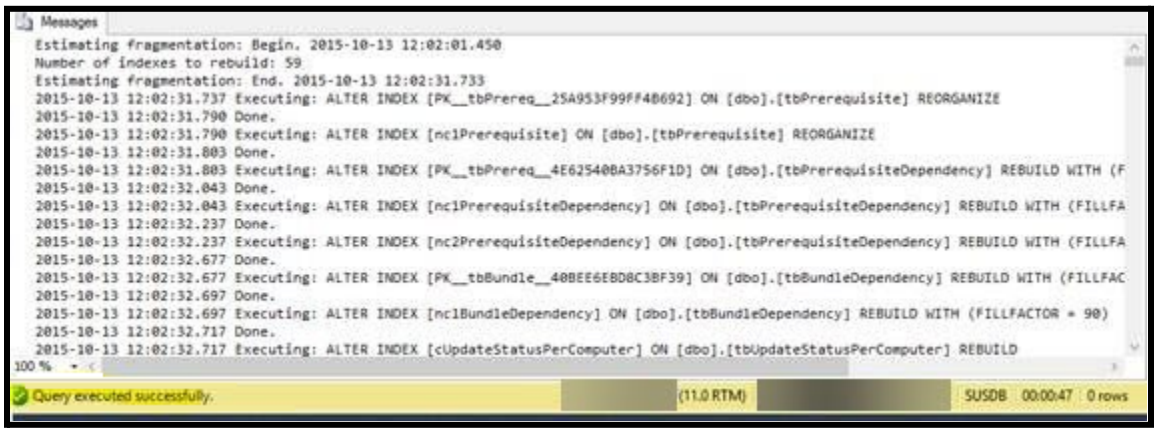




- If SUSDB was installed on WID, **SQL Server Management Studio Express** must be installed locally to run the reindex script.
- If SUSDB was installed on full SQL Server, launch **SQL Server Management Studio** and enter the **name of the server (and instance if needed)** when prompted.

To run the script in either **SQL Server Management Studio** or **SQL Server Management Studio Express**, select **New Query** and paste the script in the window and then select **Execute**. When it's finished, a **Query executed successfully** message will be displayed in the status bar. And the Results pane will contain messages related to what indexes were rebuilt.





4) Decline superseded updates

Decline superseded updates in the WSUS server to help clients scan more efficiently. Before declining updates, ensure that the superseding updates are deployed and that superseded ones are no longer needed. Configuration Manager includes a separate cleanup which allows it to expire superseded updates based on specified criteria.

The following SQL query can be run against the SUSDB database to quickly determine the number of superseded updates. If the number of superseded updates is higher than 1500 it can cause various software update related issues on both the server and client sides.

- **Select COUNT(UpdateID) from vwMinimalUpdate where IsSuperseded=1 and Declined=0**

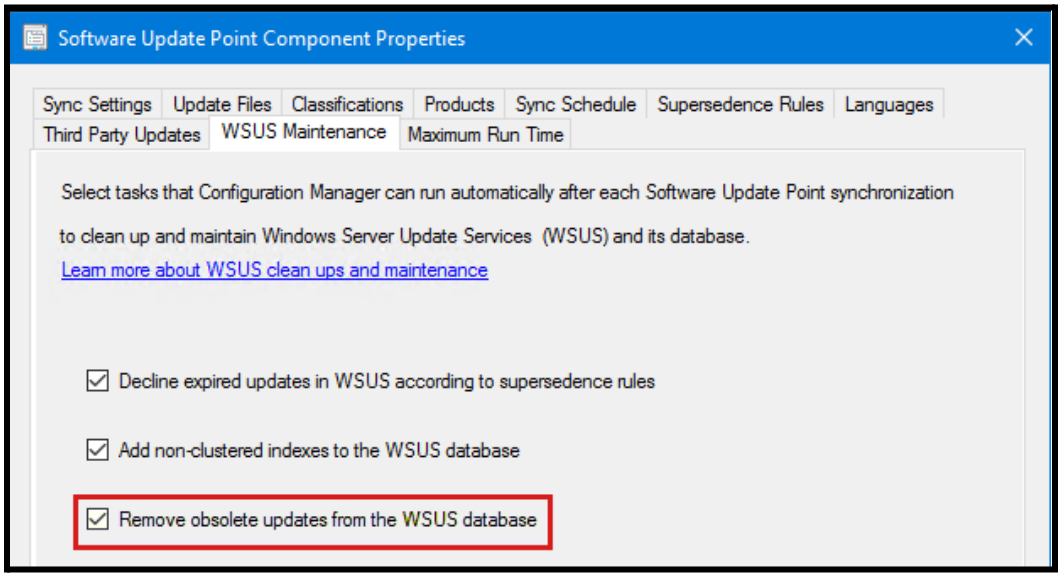
5) Run the WSUS Server Cleanup Wizard

WSUS Server Cleanup Wizard provides options to clean up the following items:

- Unused updates and update revisions (also known as Obsolete updates)
- Computers not contacting the server
- Unneeded update files
- Expired updates
- Superseded updates

In a Configuration Manager environment, **Computers not contacting the server** and **Unneeded update files** options are not relevant because Configuration Manager manages software update content and devices, unless either the **Create all WSUS reporting events** or **Create only WSUS status reporting events** options are selected under **Software Update Sync Settings**.

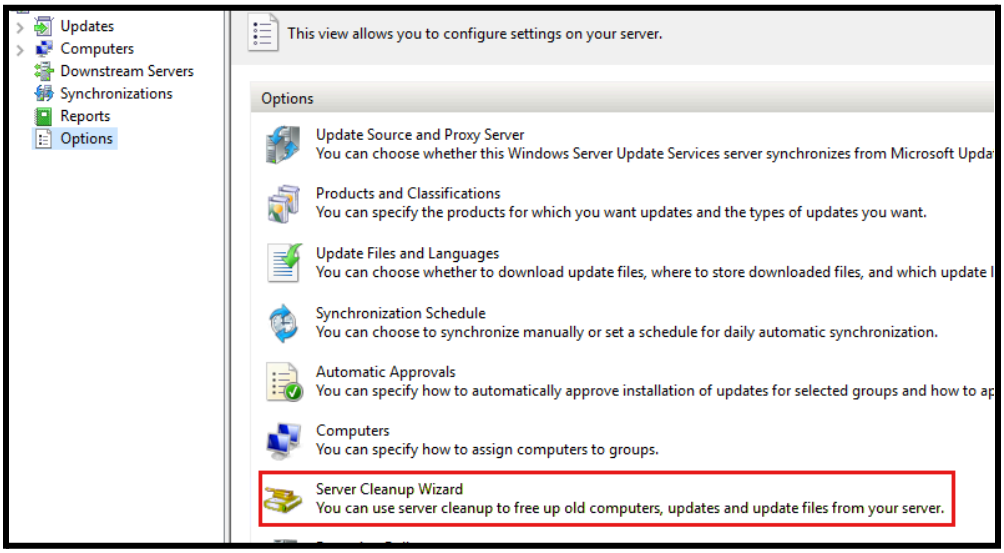
If we are using Configuration Manager current branch version 1906 or a later version, enabling the **Decline expired updates in WSUS according to supersedence rules** option handles declining of **Expired updates** and **Superseded updates** based on the supersedence rules that are specified in Configuration Manager. Enabling the **Remove obsolete updates from the WSUS database** option in Configuration Manager current branch version 1906 handles the cleanup of **Unused updates and update revisions** (Obsolete updates).

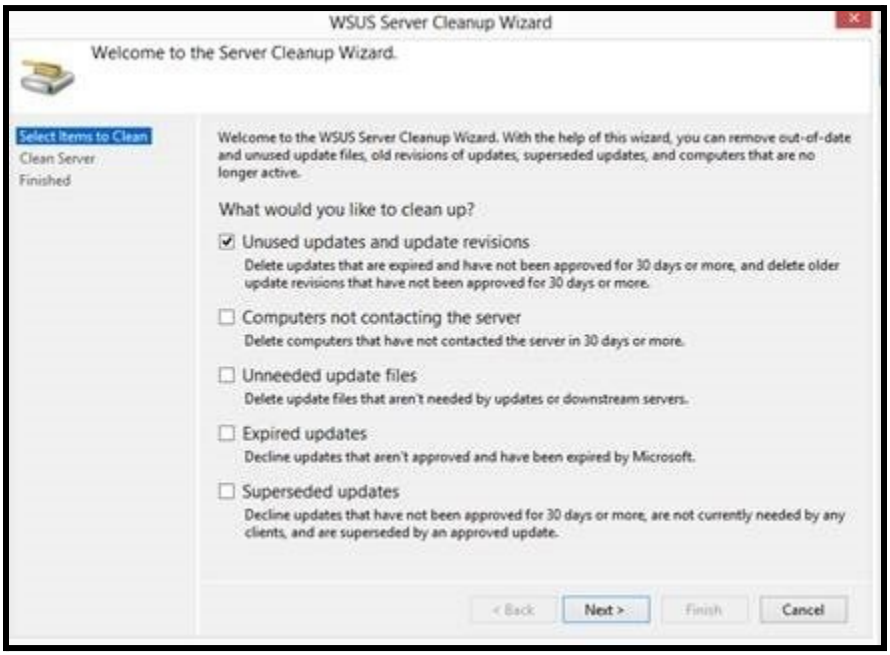


If we are using **standalone WSUS servers** or if we are using an **older version of Configuration Manager**, it is recommended that we run the **WSUS Cleanup wizard periodically**. If the WSUS Server Cleanup Wizard has never been run and the WSUS has been in production for a while, the cleanup may time out. In that case, reindex with Step 2 and Step 3 first, then run the cleanup with only the **Unused updates and update revisions** option checked.

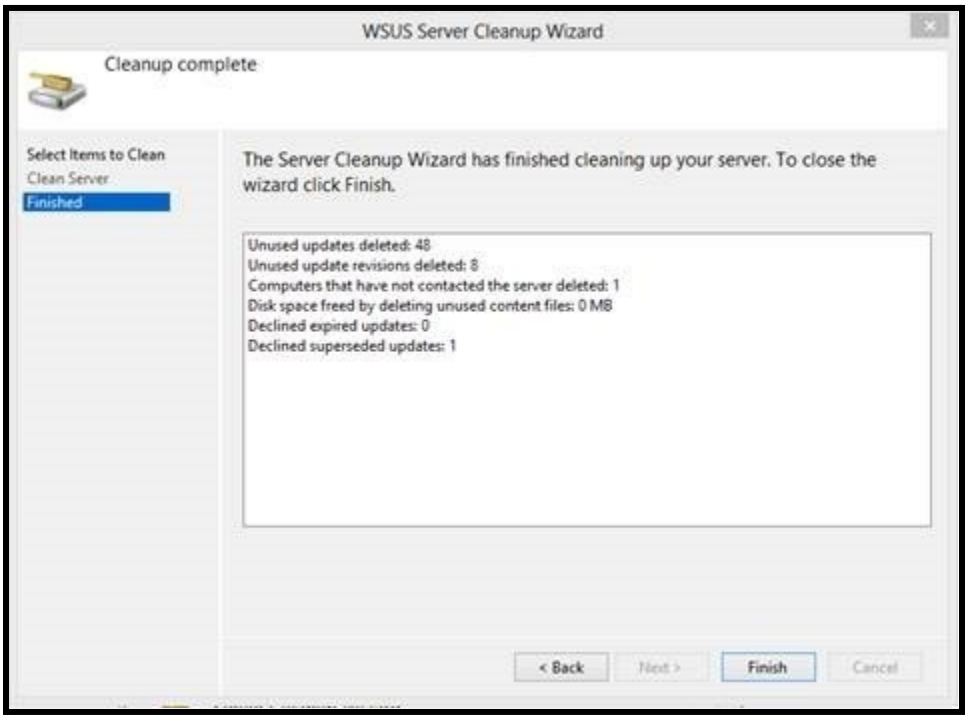
If you have never run WSUS Cleanup wizard, running the cleanup with **Unused updates and update revisions** may require a few passes. If it times out, run it again until it completes and then run each of the other options one at a time. Lastly make a full pass with all options checked. It may take multiple hours or days for the Server Cleanup Wizard or SQL alternative to run through completion.

The **WSUS Server Cleanup Wizard** runs from the **WSUS console**. It is located under **Options**:





After it reports the number of items it has removed, the cleanup finishes. If you do not see this information returned on your WSUS server, it is safe to assume that the cleanup timed out. In that case, you will need to start it again or use the SQL alternative.



After superseded updates have been declined, for best performance SUSDB should be reindexed again.