



## **Configuring a Mega TSM**

# **WISCONSIN**

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## ■ Overview

The Testing Site Manager (TSM) is currently available in two versions, one configured for 32-bit architecture and the other configured for 64-bit architecture.

- The 32-bit TSM has a memory (RAM) threshold that limits the amount of concurrent TSM testers to approximately 150, even if a large amount of CPU resources is available on the TSM machine.
- The 64-bit TSM can access more memory and increases the number of concurrent testers up to 500 (275 for WIDA administrations).

Sites that need even more powerful testing capabilities and have the necessary software, hardware, and support resources, can manually configure the 64-bit TSM to allocate more memory to the Java Virtual Machine (JVM). This maximizes the use of the system resources available in the environment and increases the number of concurrent testers to well beyond 500. This maximized, re-configured version of the 64-bit TSM is referred to as the “Mega” TSM.

Generally speaking, only sites with a significant need to test concurrently with a very large number of students need to consider this process.

**!** **Case Study:** Click **Case Study** to learn how schools in the Milwaukee school system successfully configured, implemented, and tested using multiple Mega TSMs.

## □ Summary

To configure a Mega TSM, sites must perform the following tasks:

1. Verify that the host machine has sufficient RAM and CPU configured.
2. Install the TSM (if necessary) on the host machine.
3. Stop the TSM service on the host (TSM) machine.
4. Modify the TESTING\_SITE\_MANAGER.vmoptions file in the TSM installation directory so the JVM can access the necessary amount of RAM.
5. Restart the TSM service on the host (TSM) machine.

**!** **Important:** To re-configure a 64-bit TSM, you do not need to reinstall the TSM software, assuming that the current TSM hardware meets the Mega TSM system requirements (see “Mega TSM System Requirements” on page 4) and that Automatic Updates are disabled (see “TSM Updates and the Mega TSM” on page 6).

## ■ Mega TSM System Requirements

The following are the system requirements to configure a Mega TSM.

### Dedicated TSM Machine

The TSM host machine (virtual or physical) should be dedicated to the TSM. In other words, the host machine's major function should be to run the TSM service. Running other applications on the machine may interfere with TSM's ability to manage content.

### Operating System

The Mega TSM runs on the following versions of the Windows 64-bit operating system only:

- Windows Server 2008 R2, 2012, 2012 R2\*
- Windows 7, 8.1, and 10

*\*A server-class level of operating system is recommended for a Mega TSM machine.*

### Available RAM

At least 8 GB of RAM, with at least 4 GB free and available to the TSM.

### Available LAN Bandwidth

At least 200 Mb.

### Available Disk Space

At least 20 GB.

### CPU

A 4x dual-core i5 at 2.4 GHz or equivalent.

**Note:** After the JVM has sufficient RAM, CPU capacity can become a significant constraint on TSM performance. When preparing virtual environments for the Mega TSM, be sure to allocate an amount of CPU capacity commensurate with the available RAM.

### ***Part I: Verify that the Host Machine has Sufficient RAM and CPU Resources***

Verify that the host machine has sufficient system reserves to support a TSM with 4 GB of dedicated RAM. Also, having 4 GB of RAM dedicated to the TSM allows your system to use a large amount of CPU, and the more CPU you have configured, the better.

It is recommended that you configure at least 4 CPUs, and ideally, 6 CPUs or more. A machine with fewer than 4 CPUs configured is unlikely to be able to take advantage of the added memory and increased capacity of the Mega 64-bit environment.

### ***Part II: Install the TSM***

The second part of the process is to install the TSM, if necessary. If the TSM is already installed, skip to *Part III: Stop the TSM Service*.

If you need to install the TSM, download the 64-bit Windows version of the TSM from the Downloads page of eDIRECT, or the Technology Downloads page of the WIDA Assessment Management system (WIDA AMS), to the desktop of your TSM Windows machine, start the TSM installation wizard, and follow the instructions. When you install the TSM, remember to disable automatic updates (see “TSM Updates and the Mega TSM” on page 6). For detailed TSM installation instructions, see *Volume II: Testing Site Manager (TSM)* of the *DRC INSIGHT Technology User Guide*.

## ■ TSM Updates and the Mega TSM

⚠ **Important:** The process of configuring a Mega TSM involves customizing the `TESTING_SITE_MANAGER.vmoptions` TSM configuration file. When a TSM update is installed (either manually or automatically), the customized `TESTING_SITE_MANAGER.vmoptions` file is overwritten and any Mega TSM configuration changes are lost.

To avoid losing your Mega TSM configuration changes, DRC recommends that you perform the following actions:

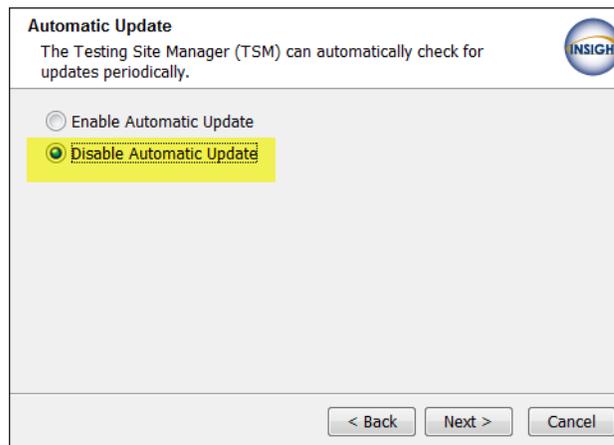
- Because the auto update process will automatically overwrite the `TESTING_SITE_MANAGER.vmoptions` file, disable the TSM Automatic Update process on your Mega TSM machines and perform TSM updates manually for these machines. For details about how to disable Automatic Updates, see [Changing a TSM Configuration](#).
- After you have created a Mega TSM `TESTING_SITE_MANAGER.vmoptions` file, create a backup copy of it, rename it (for example, to `TESTING_SITE_MANAGER.vmoptions.bak`), and store it in a location that is not affected by the TSM update process.

After you update the TSM, you can use the backup copy to replace the `TESTING_SITE_MANAGER.vmoptions` file the update installed and restore your Mega TSM configuration changes.

Use one of the following methods (A or B) to change a TSM configuration and disable automatic TSM software updates.

### Method A.

Install a new TSM, or uninstall and reinstall an existing TSM, checking **Disable Automatic Update** during the installation process.

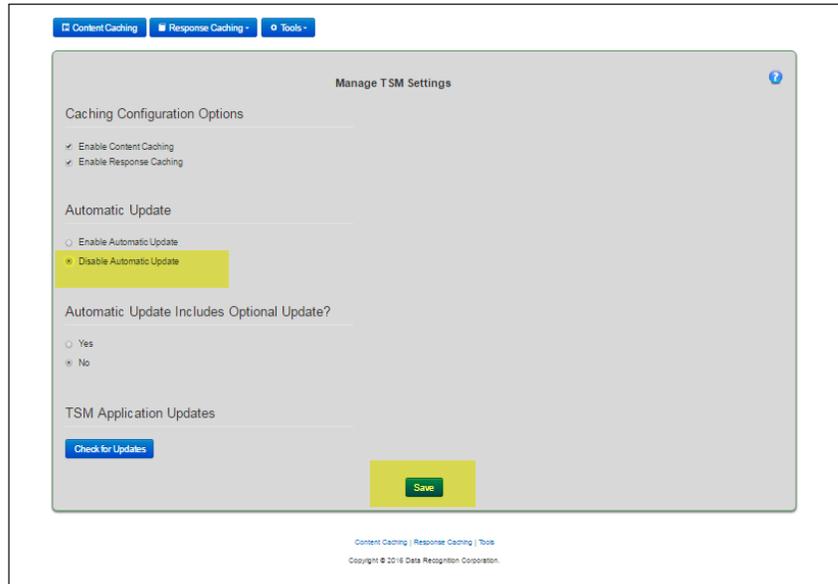


## □ Changing a TSM Configuration

## ❑ Changing a TSM Configuration (cont.)

### Method B

1. Enter the following URL from a supported browser on the machine where the TSM is installed: **http://localhost:8080/admin/manageTSM**.



2. When the Manage TSM Settings page displays, check **Disable Automatic Update** and click **Save** to save your changes.

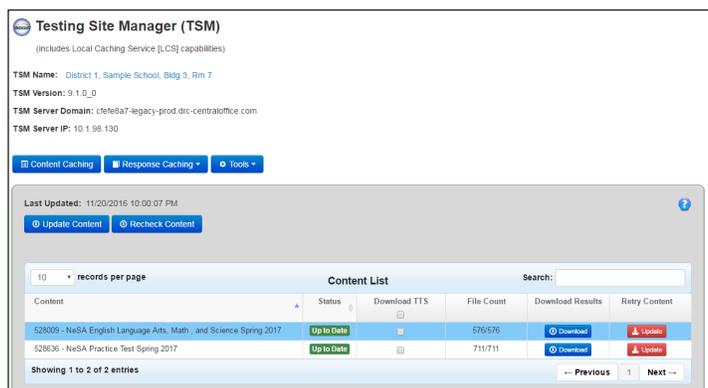
**Note:** If you have questions about using the TSM configuration software, please contact DRC Customer Service.

## Part III: Stop the TSM Service

The third part of the process is to stop the TSM service. When the TSM is installed, the TSM service starts automatically. Before you make changes to the TSM configuration, you must first stop the TSM service.

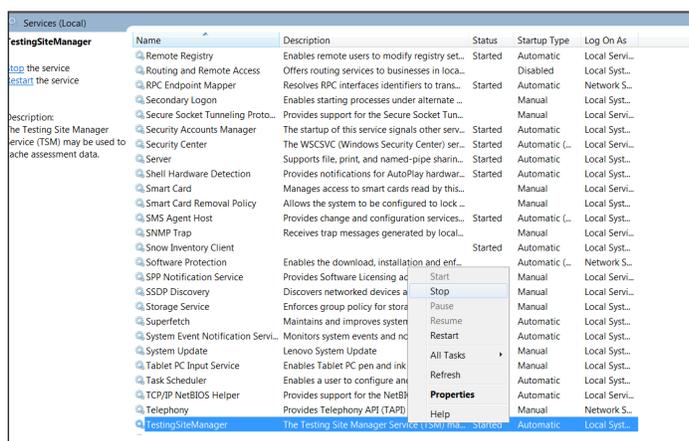
**❶ Important:** Verify that the TSM is not actively updating content or checking for updates before you attempt to stop the TSM service. Do not attempt to stop the TSM service if the TSM is active.

1. To verify that the TSM is not updating content, open the TSM by selecting **Start–All Programs–Testing Site Manager–Testing site Manager**. When the TSM displays, verify that all of the content is up to date and that the TSM is not active (see the image).



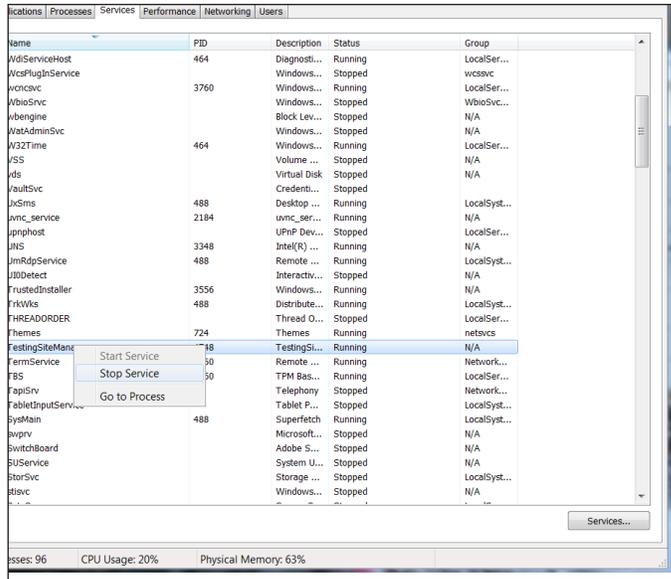
2. To stop the TSM service, locate the TSM service in the Services manager. On a Windows 7 machine, for example, you can use one of the following methods:

- Select **Control Panel–System and Security–Administrative Tools–Services–TestingSiteManager**, right-click and select **Stop** to stop the service.



## Part III: Stop the TSM Service (cont.)

- Enter **Ctrl-Alt-Delete**, **Start Task Manager**, select the **Services** tab, select **TestingSiteManager**, right-click and select **Stop Service**.



3. Within a short time, the TSM service should stop.

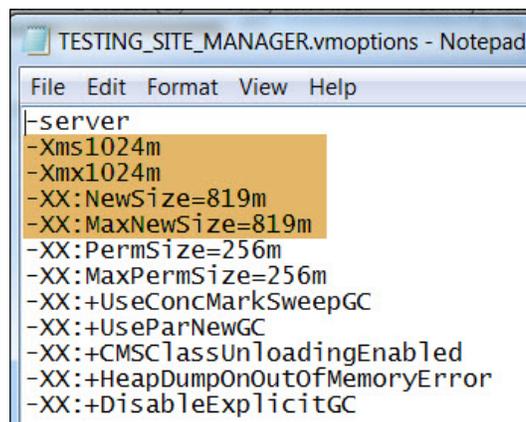
## Part IV: Modify the TSM Configuration File

The next part of the process is to edit the TSM configuration file to reflect the amount of RAM you want to allocate to the JVM. The TSM configuration file, `TESTING_SITE_MANAGER.vmoptions`, is located in the TSM installation directory wherever the TSM is installed. For Windows machines, the default installation directory is `C:\Program Files\TestingSiteManager`

1. Open the 64-bit `TESTING_SITE_MANAGER.vmoptions` file in a text editor such as Notepad. On Windows machines, the 64-bit file is located at `C:\Program Files\TestingSiteManager\TESTING_SITE_MANAGER.vmoptions`.

**⚠ Important:** Save a copy of the file as `TESTING_SITE_MANAGER.vmoptions_old` as a backup.

The following image shows a 64-bit `TESTING_SITE_MANAGER.vmoptions` file with standard (default) settings (with the settings you will be replacing highlighted).



```
TESTING_SITE_MANAGER.vmoptions - Notepad
File Edit Format View Help
-server
-Xms1024m
-Xmx1024m
-XX:NewSize=819m
-XX:MaxNewSize=819m
-XX:PermSize=256m
-XX:MaxPermSize=256m
-XX:+UseConcMarkSweepGC
-XX:+UseParNewGC
-XX:+CMSClassUnloadingEnabled
-XX:+HeapDumpOnOutOfMemoryError
-XX:+DisableExplicitGC
```

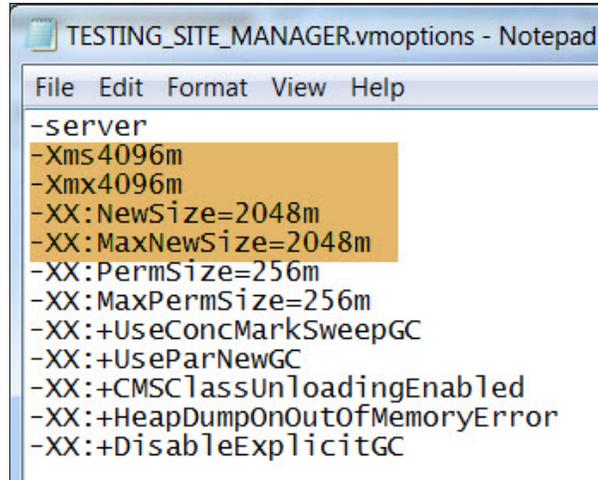
Figure: Sample 64-Bit `TESTING_SITE_MANAGER.vmoptions` File Before Editing

2. Edit the standard 64-bit `TESTING_SITE_MANAGER.vmoptions` file. First, remove the old parameters. Then, copy and paste the parameters listed below (between the lines) into the file. This list contains new values for the `Xms`, `Xmx`, `NewSize`, and `MaxNewSize` parameters.

```
=====
-server
-Xms4096m
-Xmx4096m
-XX:NewSize=2048m
-XX:MaxNewSize=2048m
-XX:PermSize=256m
-XX:MaxPermSize=256m
-XX:+UseConcMarkSweepGC
-XX:+UseParNewGC
-XX:+CMSClassUnloadingEnabled
-XX:+HeapDumpOnOutOfMemoryError
-XX:+DisableExplicitGC
=====
```

### Part IV: Modify the TSM Configuration File (cont.)

3. Save the modified TESTING\_SITE\_MANAGER.vmoptions file in your text editor. The modified file should contain the new values for the Xms, Xmx, NewSize, and MaxNewSize parameters that match your system resources (as highlighted below).



```
TESTING_SITE_MANAGER.vmoptions - Notepad
File Edit Format View Help
-server
-Xms4096m
-Xmx4096m
-XX:NewSize=2048m
-XX:MaxNewSize=2048m
-XX:PermSize=256m
-XX:MaxPermSize=256m
-XX:+UseConcMarkSweepGC
-XX:+UseParNewGC
-XX:+CMSClassUnloadingEnabled
-XX:+HeapDumpOnOutOfMemoryError
-XX:+DisableExplicitGC
```

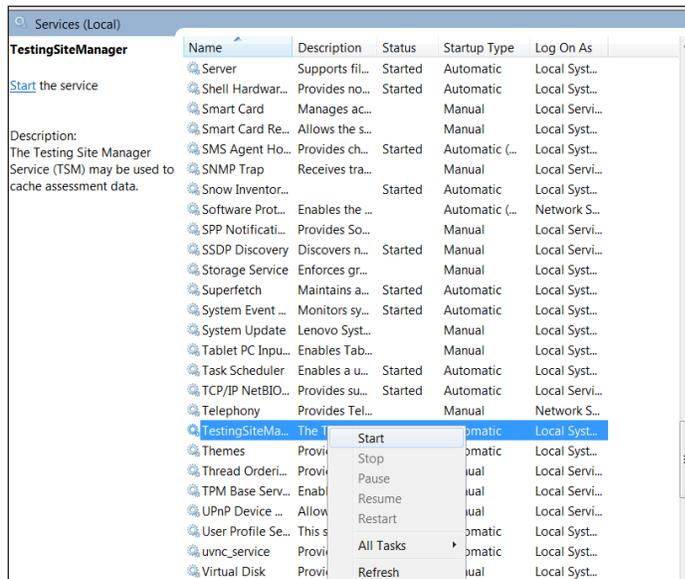
Figure: Sample 64-Bit TESTING\_SITE\_MANAGER.vmoptions File After Edit

4. Close the text editor.

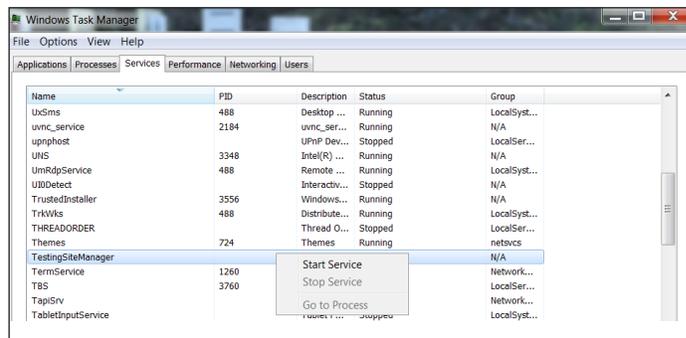
## Part V: Restart the TSM Service

The final part of the process is to restart the TSM service to make your changes take effect.

1. To restart the TSM service, locate the TSM service in the Services manager. On Windows machines, for example, you can use one of the following methods:
  - Select **Control Panel–System and Security–Administrative Tools–Services–TestingSiteManager**, right-click and select **Start** to start the service.



- Enter **Ctrl-Alt-Delete**, **Start Task Manager**, select the **Services** tab, select **TestingSiteManager**, right-click and select **Start Service**.



2. When the TSM service starts, the TSM JVM will automatically use the new settings from the TESTING\_SITE\_MANAGER.vmoptions file.

# Notes



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