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A Complete Guide To Tomcat Start-Up

Manual, Automatic, and Remote

At first glance, starting up the Tomcat Server is a simple task. On the other hand, when you consider that it can be accomplished in a variety of ways (manually, automatically, or remotely), that these methods differ from platform to platform, and that when it comes down to it, if you can't get your server to start up, you're in a real bind, there's actually a lot to talk about.

The goal of this guide is to put all the information about starting Tomcat there is on one page, in a clear, accessible format.

To keep things simple, we've divided the guide into three large sections: Manual Startup, Automatic Startup, and Remote Start-up, with additional platform- and method-specific sub-sections as needed. As it's a closely related topic, the guide also includes a discussion about methods of reliably restarting your Tomcat server as an appendix.

MuleSoft's [Tcat \(/misc/forms/download/tcat-lbox-form.php\)](/misc/forms/download/tcat-lbox-form.php), an enterprise Tomcat solution, provides reliable remote startup and shutdown for single and multiple Tomcat servers. Tcat is available as a [download \(/misc/forms/download/tcat-lbox-form.php\)](/misc/forms/download/tcat-lbox-form.php) from MuleSoft's website.

command line or by using a platform-specific method. Here's a run down of all the common methods of manually starting Tomcat.

Before attempting to start Tomcat by any of these methods, make sure that you are not already running another Tomcat instance with conflicting HTTP, Server, or [Connector \(/tomcat-connector\)](#) port configurations. Two instances cannot share the same port numbers.

Additionally, ensure that no other servers are already using ports 80 or 8080.

Both of these situations can cause Tomcat start-up to fail.

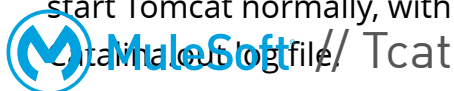
Using the Tomcat Shell Scripts

The shell scripts located in "CATALINA_HOME/bin" are the most bare-bones way of getting Tomcat up and running. The two scripts capable of starting Tomcat in this directory are named "catalina" and "startup", with extensions that vary by platform.

For Unix-based systems, these are standard shells scripts, with the extension ".sh". For [Windows \(/tomcat-windows\)](#) users, these scripts are included as batch files, with the extension "bat".

"[Catalina \(/tomcat-catalina\)](#)" is the script that is actually responsible for starting Tomcat; the "startup" script simply runs "catalina" with the argument "start" ("catalina" also can be used with the "stop" parameter to shut down Tomcat).

Most users will find it easiest to simply run "startup" from the command-line, which will start Tomcat normally, with output and error streams being written to the standard



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However, if you'd like to watch the server start up right in the terminal, you can use "catalina" with the "run" parameter to prevent these log streams from being redirected.

A number of other parameters can be used with "catalina" as well; notably, these include "jpda start", used to start Tomcat as a Java Platform Debugger Architecture for remote debugging, and "-config [path/to/alt/server.xml]", which allows you to specify

A complete list of "catalina" parameters is available on the Apache project [website](http://tomcat.apache.org/tomcat-6.0-doc/) (<http://tomcat.apache.org/tomcat-6.0-doc/>).

Before we move on, a quick tuning tip - since "catalina" calls the java command used to start Tomcat, you can set [JVM \(/tomcat-jvm\)](#) options such as heap [memory \(/tomcat-memory\)](#) size in the JAVA_OPTS environment variable to have Tomcat automatically pass settings to the JVM when it starts. For more tuning tips, including a few tricks you can use to help Tomcat start up more efficiently, check out our [Tomcat Performance \(/tomcat-performance\)](#) Tuning guide.

Manual Start-Up For Linux-specific Distributions

If you chose to use the RPM Package Manager to install Apache Tomcat on your [Linux \(/tomcat-linux\)](#) machine, an init script was also installed to your init.d directory to handle Tomcat's startup and shutdown.

If you installed the standard RPM distribution, start Tomcat with the following command:

```
# /etc/rc.d/init.d/tomcat start
```

For users of the Tomcat distribution provided by JPackage.org, the script's name is appended by the [version number]:

```
# /etc/rc.d/init.d/tomcat[#] start
```

Manual Start-Up For Solaris-specific Distributions

If you installed Tomcat on your Solaris machine using the Blastwave distribution, an init script was also added to your init.d directory to handle Tomcat's startup and shutdown. You can start Tomcat with the following command, appending the appropriate [version number]:

```
# /etc/init.d/cswtomcat[#] start
```

Manual Start-Up For FreeBSD Distributions

following additional line.

```
tomcat60_enable="YES"
```

After doing this, you can run tomcat[version number].sh with the following command:

```
# /path/to/etc/rc.d/tomcat[#].sh
```

Note that by default, this script is installed in usr/local/.

Manual Start-Up For Windows Distributions

There are two ways of manually starting Tomcat on a Windows machine; one is to execute "catalina.bat start" or "startup.bat" from the command line.

The other way, if you've installed Tomcat as a service, is to use the manager tool Tomcat6w.exe, a small GUI program that resides in the task bar after it has been run. Double-clicking its icon will open a tabbed dialog window, which includes a start-up button, and can also be used to configure a few start up options.

If you don't know if you've installed Tomcat as a Windows Service, don't worry - this is covered in the Automatic Start-Up section. However, as a quick rule of thumb, if you installed Tomcat using the Windows EXE installer, Tomcat was also installed as a service automatically.

Manual Start-Up For Mac OS X Distributions

Technically, there is no "Mac-specific" distribution of Tomcat - Mac users simply download the binary distribution and unpack it. Thus, all you need to do to start Tomcat on a Mac is to run "catalina.sh start" or "startup.sh" within Terminal.

However, the OS X user structure allows you to start Tomcat in a more secure manner by adding some additional parameters to the command:

```
$ cd /; sudo -u nobody /path/to/tomcat/bin/startup.sh; cd -
```

nobody's limited access and the shell script's directory traversal methods by calling the script from the root folder.

Start Automatically on Boot

An important step of transitioning from a Tomcat development environment to a production setting is configuring Tomcat to automatically start on system boot. This ensures that if a machine must restart for any reason (applying an update, etc.), the server will come back online, even if it is being used in a blade environment without a screen or user to interact with it, and also offers some additional [security \(/tomcat-security\)](#).

Starting Tomcat Automatically on a FreeBSD Machine

We'll start with FreeBSD machines, because there's actually no additional steps required. If you've enabled "tomcat[#].sh" in "/etc/rc.conf", as outlined in the previous section, FreeBSD will start Tomcat automatically when you boot by default.

Starting Tomcat Automatically on a Solaris Machine

Getting Tomcat starting on boot for Solaris machines is just as easy as on FreeBSD machines - that is, if you installed the Blastwave distribution, which is configured for automatic startup by default.

If you installed the binary distribution provided by Apache, you'll have to do a little more work. First, [follow the instructions provided below](#) for Linux users to create a custom init script, which will be used to automatically start Tomcat.

Once you've done this, save your script in a new directory of "/etc/init.d" (we recommend "tomcat"), and configure the proper permissions settings (the process must belong to the sys group and be owned by root, and both sys and root must be able to read and execute the script).

Now, simply link the service to rc3.d (you'll need to substitute a start order [value] appropriate for your system):

```
#ln -s /etc/init.d/tomcat /etc/rc3.d/S[#]tomcat
```

Windows service, a background process that gathers all processes associated with a given application together in one container to be managed by the system. Windows services can be configured to boot automatically at login, and shut down smoothly on logout.

As mentioned in the manual start-up section for Windows distributions, if you utilized the Tomcat EXE installer package to install Tomcat on your Windows machine, you have already installed Tomcat as a service. You can configure the server to start automatically either through the tomcat6w.exe tray program, or by editing the preferences for "Apache Tomcat" in the Services configuration pane, located in the Administrative Tools section of the Windows Control Panel.

You can set the Tomcat service startup option to either "Automatic", if you want the service to start immediately, or "Automatic (Delayed)", which aims for a faster overall system boot by delaying the startup of non-system-critical services until all core components have been loaded.

If you did not use the Windows installer, you can install Tomcat as a service manually. This is outside the scope of this article, but don't worry! We've created a separate step-by-step guide to the [Tomcat Service \(/tcat/tomcat-service\)](#) for Windows users in this situation.

Starting Tomcat Automatically on a Linux Machine

The correct way to configure automatic start-up in a Linux environment depends on how you installed Tomcat. As mentioned above, both RPM distributions of Tomcat come packaged with custom init scripts, which the system can be configured to run on login. The standard binaries do not, so you'll have to write your own init script. If you don't know how to do this, there is a good Tomcat-specific guide available [here](http://www.raibledesigns.com/tomcat/boot-howto.html) (<http://www.raibledesigns.com/tomcat/boot-howto.html>).

Once the proper init script is in place, the same process is used to start Tomcat on boot for all distributions. Linux uses "run levels" to determine the order in which various services should be started. Anything above a 1 or below a 6 (the shutdown and boot level) is a multi-user level, meaning that it can handle the kind of connections Tomcat needs to run. To make Tomcat start automatically when the system is in levels 2,3,4, or 5, use the "chkconfig" tool from the command line:

section) for the placeholder.

Start Tomcat Automatically on a Mac OS X Machine

As of OS X version 10.4, Apple launches and manages all its init scripts via a program "launchd", which uses property list files to provide centralized access and configuration control over all the daemons available for the system to run.

This feature is designed for ease of use, but unfortunately, it causes Tomcat's start-up scripts some problems, as they are designed to run once and quit, without having to interact with any central managing utility. To prevent forking, you'll have to create a custom .plist file for Tomcat containing an init script workaround.

Fortunately, you won't have to do all this work yourself. The Atlassian product Confluence runs on Tomcat, and their documentation includes information about starting and stopping Tomcat automatically on Mac OS X, including script and .plist examples - you can find them [here](https://confluence.atlassian.com/display/CONF32/Start+Confluence+automatically+on+OS+X+) (<https://confluence.atlassian.com/display/CONF32/Start+Confluence+automatically+on+OS+X+>) Simply remove all Confluence-specific references to get to get these scripts working for you!

A Word On Remote Start-Up

As Tomcat's startup is controlled with simple shell scripts for most systems, it is possible to start Tomcat remotely if you have SSH access to the host machine. Here's an example of how you might do this on a Unix-based machine:

```
#ssh user@host.com
```

```
login: user
```

```
password: password
```

```
#cd $CATALINA_HOME/bin;
```

```
#sudo ./catalina.sh start;
```

```
## sudo -i /etc/crontab.cron stop, sudo -i /etc/crontab.cron start,
```

There are a few downsides to using this technique. For one thing, you'll have to configure SSH keys for every machine you want to start, which can be a huge hassle, even if you use a utility. Secondly, it's quite unreliable, as it won't provide you with any way of monitoring the startup. If you're doing a restart, you'll be completely in the dark while the server is down. Lastly, starting and stopping Tomcat in this way offers no provision for lost threads or corrupted user data, meaning that problems may not appear until they are causing errors for your users.

MuleSoft's [Tcat \(/tcat-server-enterprise-tomcat-application-server\)](#), an enterprise Tomcat solution, provides reliable remote start-up and shut-down for single or multiple Tomcat servers through custom scripting solutions. Tcat is available as a download from MuleSoft's website.

See the power of Tcat's remote start and restart features for yourself - try it out today!

Download tcat

[Download \(/tcat/download\)](#)

Related Articles

- [Using Apache Tomcat in a Windows Environment - A Guide \(/tcat/tomcat-windows\)](#)
- [Apache Tomcat Linux Installation and Set-Up \(/tcat/tomcat-linux\)](#)
- [Apache Tomcat Proxy Configuration \(/tcat/tomcat-proxy-configuration\)](#)
- [The Tomcat Service for Windows - An Simple Guide \(/tcat/tomcat-service\)](#)
- [Configuring Tomcat - a chapter from Tomcat: the Definitive Guide \(/tcat/configuring-tomcat-chapter-tomcat-definitive-guide\)](#)

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