
How to install Tomcat 4 NT service?

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1 Abstract

This text covers the installation of Tomcat 4 as NT service and the creation of Tomcat NT services. The creation of NT services can be used if during the installation of Tomcat 4 the installation option NT service was not checked or a relocated web application directory is used. Also Multiple Tomcat instances on the same machine can be run as NT service.

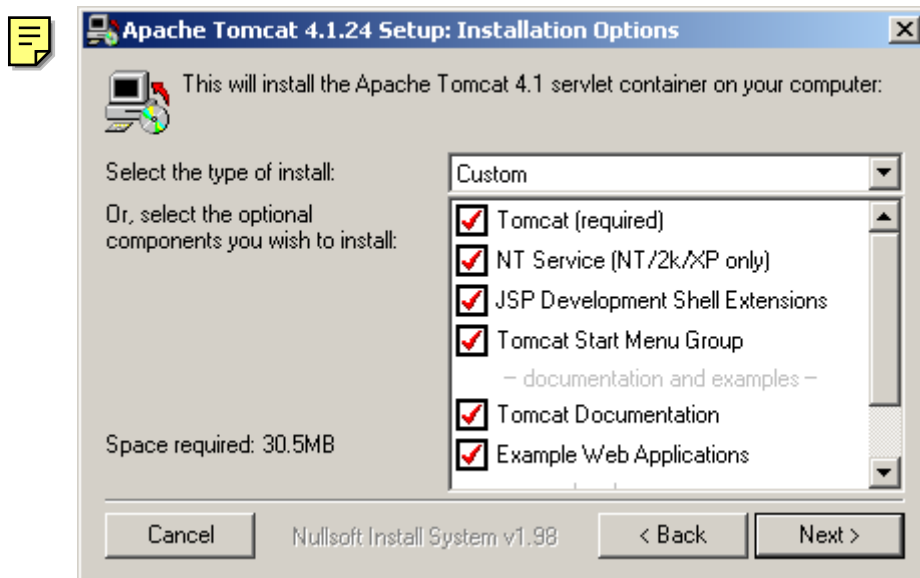
These instructions have been tested on Windows 2000 with Tomcat 4.1.24.

2 Prerequisites

Properly installed **J2SE SDK** with **JAVA_HOME** set in your environment.

3 Install Tomcat 4 (NT service)

1. Download the Windows binaries: **tomcat-4.1.24.exe**
2. Install Tomcat 4 by double-clicking on the downloaded file and following the prompts.
- 2a. As **Installation Option** choose **Custom** and check the **NT Service (NT/2K/XP only)** check-box:



Tomcat is installed as NT Service!

With this option a NT Service is created in the Windows registry and the service is started after the installation is completed. The started service uses the instance and the web application directory in the Tomcat installation directory specified during installation.

*To create and start the service the file **tomcat.exe** is extracted to the bin directory of the Tomcat installation directory. This also can be used to create a NT service manually and is only extracted if the NT Service option was selected during the installation.*

- 2b. Follow the next prompts.
3. Set **CATALINA_HOME** in your environment to point to the Tomcat 4.1 installation directory.

4 Install NT service manually

If Tomcat was not installed as NT service a new NT service has to be **created manually**. Tomcat itself provides a tool to create manually a Tomcat NT service for an existing installation.

*Using the Windows installer **tomcat.exe** is only extracted to the **bin** directory of the Tomcat installation directory if you have chosen the NT Service option during installation. If you do not find the **tomcat.exe** file in the **bin** directory of the Tomcat installation directory no service was installed during installation.*

*You can uninstall Tomcat and install it again with the NT Service option checked to get the file. If you do not want to reinstall Tomcat you can download the **tomcat-4.1.24.zip** distribution file and extract the **tomcat.exe** file and copy it to the **bin** directory of your Tomcat installation directory.*

This tool can be found in the **bin** directory of the Tomcat installation directory:
tomcat.exe

Usage of **tomcat.exe**:

\ tomcat -?

To install a service:

```
-install service_name jvm_library (jvm_option)*  
-start start_class [-method start_method] [-params (start_parameter)+]  
[-stop start_class [-method stop_method] [-params (stop_parameter)+]]  
[-out out_log_file] [-err err_log_file]  
[-current current_dir]  
[-path extra_path]
```

To uninstall a service:

```
-uninstall service_name  
[...]
```

There are a lot of options and parameters and that make the command **tomcat.exe** very inconvenient to handle manually.

-install Service_name Path_to_Server_JVM

-Dcatalina.home Path to the installation directory of Tomcat. Here are all the classes needed to run the server.

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- Dcatalina.base Path to the web application directory. This is the directory of the deployed web application.
- Djava.endorsed.dirs Path to endorsed resources: xercesImpl.jar, xmlParserAPI.jar These come with the Tomcat installation.
- Djava.class.path Path to the Bootstrap.jar needed for starting the service.
- start Start class, method and parameters to start the service.
- stop Stop class, method and parameters to stop the service.
- out Path to output log file.
- err Path to error log file.

This is a **sample** to create a Tomcat NT service.

```
C:\Tomcat4\bin tomcat -install Tomcat_Instance_2
D:\DEV\j2sdk14103\jre\bin\server\jvm.dll
-Dcatalina.home=D:\server\ApacheGroup\Tomcat4
-Dcatalina.base=D:\server\tomcat-instances\instance2
-Djava.endorsed.dirs=D:\server\ApacheGroup\Tomcat4\common\endorsed
-Djava.class.path=D:\server\ApacheGroup\Tomcat4\bin\bootstrap.jar
-Xrs -Xms64m -Xss1024k -Xmx256m
-start org.apache.catalina.startup.BootstrapService -method main -params start
-stop org.apache.catalina.startup.BootstrapService -method main -params stop
-out D:\server\tomcat-instances\instance1\logs\Tomcat_Instance_2_out.log
-err D:\server\tomcat-instances\instance1\logs\Tomcat_Instance_2_err.log
```

This is all in ONE line so that the **tomcat** command can parse all options!!

As you can see, this is hard to handle even if you want to create more than one service.

5 Install NT service using ANT

The inconvenient task to manually install a NT service can easily be done using ANT. The ANT buildfile **tomcatService.xml** in combination with the **tS.properties** file takes care of installing a NT service.

1. You need a properly installed **ANT** distribution!
2. The **tomcatService.xml** expects the following:

JAVA_HOME set in environment pointing to the J2SE installation directory.
CATALINA_HOME set in environment pointing to the Tomcat 4 installation directory.

3. Modify **tS.properties**:

```
# Path to the Tomcat instance / application  
# Use \ (backslash) as this path is used within the Windows Registry  
CATALINA_BASE=D:\\server\\tomcat-instances\\instance3  
  
# Name of service used by Windows  
SERVICE_NAME=Tomcat_Instance_A2  
  
# Description of the service used by Windows  
SERVICE_DESCRIPTION=Tomcat Instance Service  
  
# VM attributes  
# See J2SE tooldocs!  
XMS=-Xms64M  
XSS=-Xss1024K  
XXM=-Xmx256M
```

Modify **CATALINA_BASE** to point to your web application directory. If you do not use a distributed web application directory or multiple instances of Tomcat point it to the Tomcat installation directory.

Use a **SERVICE_NAME** so you can easily identify the Tomcat instance among the Windows services.

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4. Execute the **tomcatService.xml** with ANT!

```
D:\ ant -buildfile tomcatService.xml
```

```
Buildfile: tomcatService.xml
```

```
main:
```

```
[echo] Install Tomcat as Service (Tomcat_Instance_A2) on Windows 2000!
```

```
[echo] Created D:\server\ApacheGroup\Tomcat4\bin\Tomcat_Instance_A2.exe !
```

```
[exec] The service was successfully installed.
```

```
[echo] Creating description file for Windows registry.
```

```
[echo] Updating registry with description.
```

```
[echo] Deleting description file for Windows registry.
```

```
[delete] Deleting: D:\service.reg
```

```
BUILD SUCCESSFUL
```

```
Total time: 1 second
```

The NT service is now created but not started.

Go to **Start > Settings > Control Panel > Administrative Tools > Services.**

Select your named service and start it.

The service is automatically started after rebooting the system.

6 Uninstall NT service

Tomcat itself provides a tool to uninstall a Tomcat NT service.

It is the same tool to install a NT service. This tool can be found in the **bin** directory of the Tomcat installation directory.

tomcat.exe

\ tomcat -?

[...]

To uninstall a service:

-uninstall service_name

[...]

1. Stop the NT service.
Go to **Start > Settings > Control Panel > Administrative Tools > Services** .
Select your named service and stop it.
2. Uninstall the NT service.
Go to the **bin** directory in the Tomcat installation directory.
tomcat -uninstall Tomcat_Instance_A2

7 tomcatService.xml

```
<?xml version="1.0" ?>

<project name="InstallTomcatService" default="main" basedir=".">

  <property environment="env" />
  <property file="tS.properties" />

  <target name="main">
    <echo message="Install Tomcat as Service (${SERVICE_NAME}) on ${os.name}!" />
    <copy file="${env.CATALINA_HOME}\bin\tomcat.exe"
          tofile="${env.CATALINA_HOME}\bin\${SERVICE_NAME}.exe" />
    <echo message="Created ${env.CATALINA_HOME}\bin\${SERVICE_NAME}.exe !" />
    <echo message="Creating ${SERVICE_NAME} in registry." />
    <exec executable="${env.CATALINA_HOME}\bin\${SERVICE_NAME}.exe">
      <arg line="-install ${SERVICE_NAME} ${env.JAVA_HOME}\jre\bin\server\jvm.dll" />
      <arg line="-Dcatalina.home=${env.CATALINA_HOME}" />
      <arg line="-Dcatalina.base=${CATALINA_BASE}" />
      <arg line="-Djava.io.tmpdir=${CATALINA_BASE}\temp" />
      <arg line="-Djava.endorsed.dirs=${env.CATALINA_HOME}\common\endorsed" />
      <arg line="-Djava.class.path=${env.CATALINA_HOME}\bin\bootstrap.jar;
              ${env.CATALINA_HOME}\common\lib\${env.JAVA_HOME}\lib\tools.jar" />
      <arg line="-Djava.home=${env.JAVA_HOME}\jre" />
    <!--
      -Xrs
      Reduces usage of operating-system signals by the Java virtual machine (JVM).
      This option is available beginning with J2SE 1.3.1.
    -->
    <arg line="-Xrs" />
    <arg line="{XMS}" />
    <arg line="{XSS}" />
    <arg line="{XMX}" />
    <arg line="-start org.apache.catalina.startup.BootstrapService -method main -params start -
              config ${CATALINA_BASE}\conf\server.xml" />
    <arg line="-stop org.apache.catalina.startup.BootstrapService -method main -params stop" />
    <arg line="-out ${CATALINA_BASE}\logs\${SERVICE_NAME}_out.log" />
    <arg line="-err ${CATALINA_BASE}\logs\${SERVICE_NAME}_err.log" />
  </exec>
  <echo message="Creating description file for Windows registry." />

  <!--
    Create .reg file with entries for Windows registry!
  -->
  <echo file="service.reg" append="false" message="Windows Registry Editor Version 5.00" />
  <echo file="service.reg" append="true"
        message="[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\
                ${SERVICE_NAME}]" />
  <echo file="service.reg" append="true" message="'Description'='${SERVICE_DESCRIPTION}'" />
  <echo message="Updating registry with description." />

  <exec executable="regedit">
    <!--
      /s
      Run regedit in silent mode without prompting for confirmation!
    -->
    <arg line="/s" />
    <arg line="service.reg" />
  </exec>
  <echo message="Deleting description file for Windows registry." />
  <delete file="service.reg" />

</target>

</project>
```

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8 tS.properties

```
# Path to the Tomcat instance / application
# Use \ (backslash) as this path is used within the Windows Registry
CATALINA_BASE=D:\\server\\tomcat-instances\\instance3

# Name of service used by Windows
SERVICE_NAME=Tomcat_Instance_A2

# Description of the service used by Windows
SERVICE_DESCRIPTION=Tomcat Instance Service

# VM attributes
# See J2SE tooldocs!
XMS=-Xms64M
XSS=-Xss1024K
XMX=-Xmx256M
```