

Upgrade Apache Tomcat Manually

Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Components Used](#)

[Upgrade](#)

[Before Upgrade](#)

[Uninstall the Current Tomcat](#)

[Install Tomcat](#)

[Backup Tomcat Folder to Delete Tomcat Directories](#)

[Copy Tomcat Files](#)

[Add Missing Files](#)

[Enable Inheritance and Start the Tomcat Service](#)

[Verify](#)

Introduction

This document describes how to manually upgrade Apache Tomcat on CCE.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Contact Center Enterprise (CCE) 12.6
- Apache Tomcat

Components Used

The information in this document is based on these software and hardware versions:

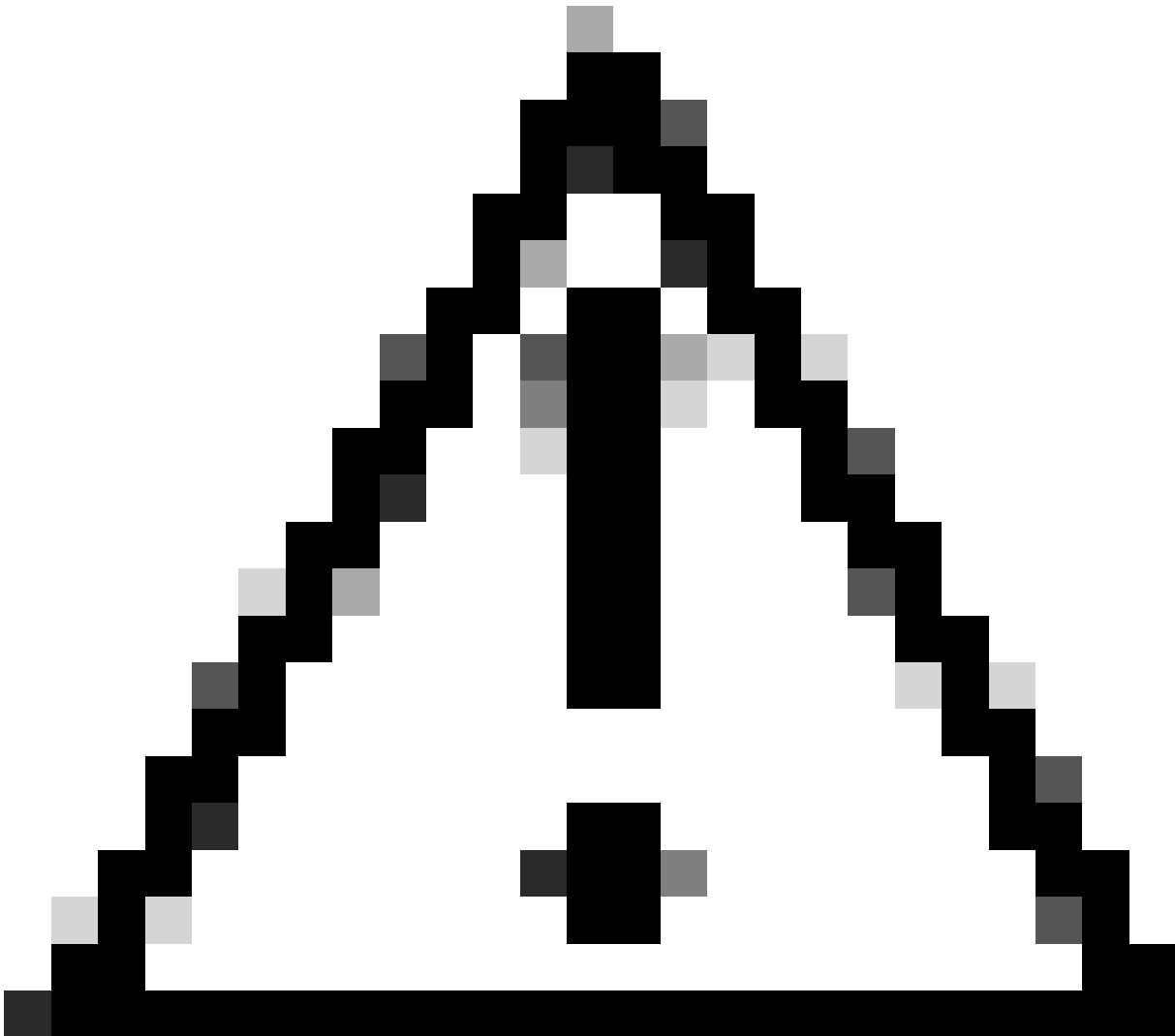
- CCE 12.6
- Apache Tomcat 9.x

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Upgrade

In most instances, updating Tomcat using Cisco Upgrade Tomcat Utility resolves vulnerabilities. There are times when upgrading Tomcat fails, configuration is corrupt, or a new person updates Tomcat using the files

they find Online.










Caution: Please take a VM snapshot before starting this procedure. Contact TAC for any assistance.

Before Upgrade

1. Download the Tomcat installer (apache-tomcat-version.exe) from the Tomcat website:
<http://archive.apache.org/dist/tomcat/tomcat-9/>.
2. Copy the installer onto the Unified CCE component VMs. In this upgrade, I used tomcat version 9.0.89.

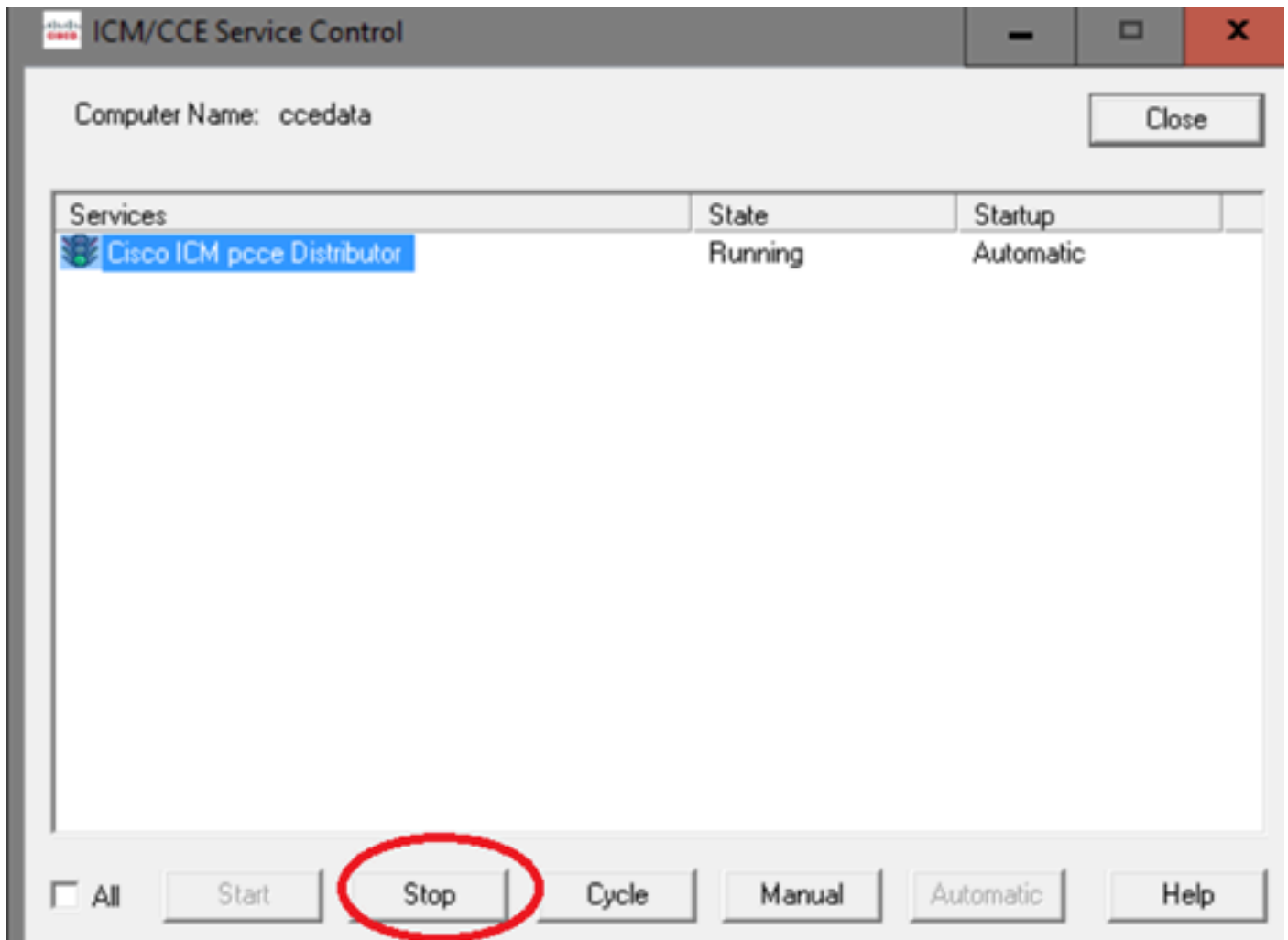
Index of /dist/tomcat/tomcat-9/v9.0.89/bin

Name	Last modified	Size	Description
 Parent Directory		-	
 embed/	2024-05-07 17:55	-	
 apache-tomcat-9.0.89-deployer.tar.gz	2024-05-03 20:31	2.8M	
 apache-tomcat-9.0.89-deployer.tar.gz.asc	2024-05-03 20:31	833	
 apache-tomcat-9.0.89-deployer.tar.gz.sha512	2024-05-03 20:31	166	
 apache-tomcat-9.0.89-deployer.zip	2024-05-03 20:31	2.8M	
 apache-tomcat-9.0.89-deployer.zip.asc	2024-05-03 20:31	833	
 apache-tomcat-9.0.89-deployer.zip.sha512	2024-05-03 20:31	163	
 apache-tomcat-9.0.89-fulldocs.tar.gz	2024-05-03 20:31	7.3M	
 apache-tomcat-9.0.89-fulldocs.tar.gz.asc	2024-05-03 20:31	833	
 apache-tomcat-9.0.89-fulldocs.tar.gz.sha512	2024-05-03 20:31	166	
 apache-tomcat-9.0.89-windows-x64.zip	2024-05-03 20:31	13M	
 apache-tomcat-9.0.89-windows-x64.zip.asc	2024-05-03 20:31	833	
 apache-tomcat-9.0.89-windows-x64.zip.sha512	2024-05-03 20:31	166	
 apache-tomcat-9.0.89-windows-x86.zip	2024-05-03 20:31	13M	
 apache-tomcat-9.0.89-windows-x86.zip.asc	2024-05-03 20:31	833	
 apache-tomcat-9.0.89-windows-x86.zip.sha512	2024-05-03 20:31	166	
 apache-tomcat-9.0.89.exe	2024-05-03 20:31	13M	
 apache-tomcat-9.0.89.exe.asc	2024-05-03 20:31	833	

In this lab, an AW server was used to upgrade Tomcat.

Uninstall the Current Tomcat

Step 1. Stop the distributor service:



Step 2. Stop the Tomcat, IIS admin and World wide web service from windows services.msc.

Open Services.msc:



Best match



Services

Desktop app



Component Services

Desktop app

Apps



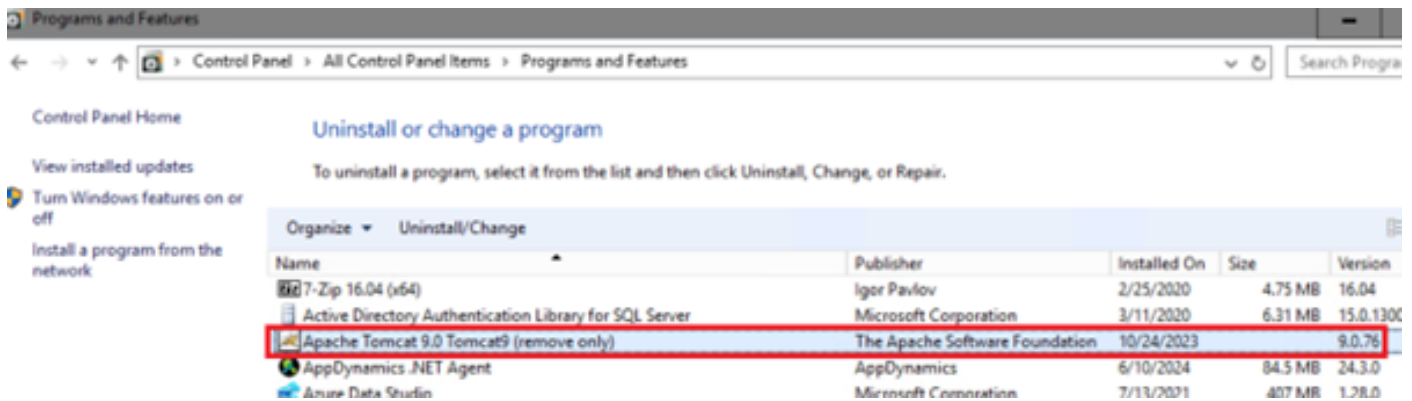
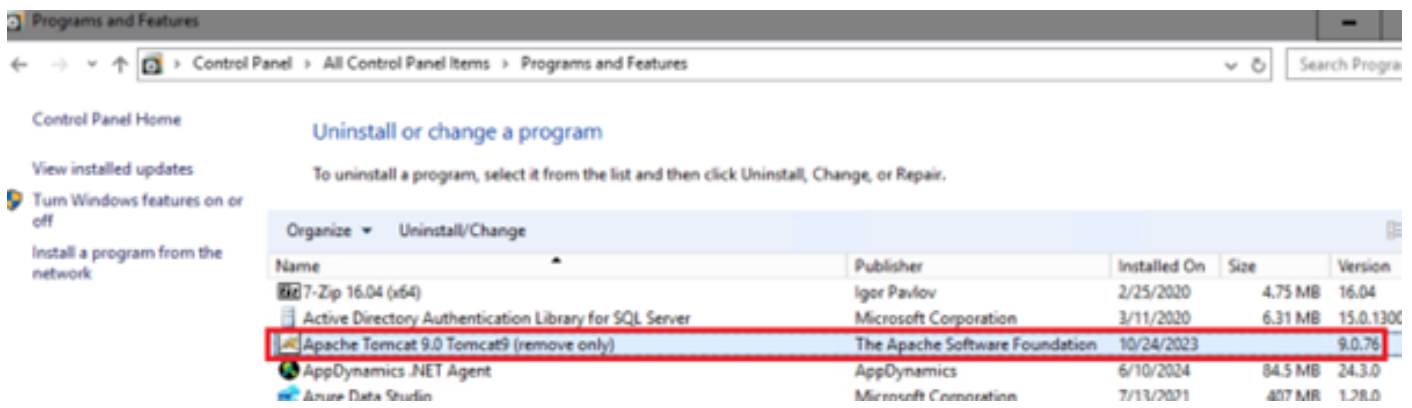
Microsoft Azure Services



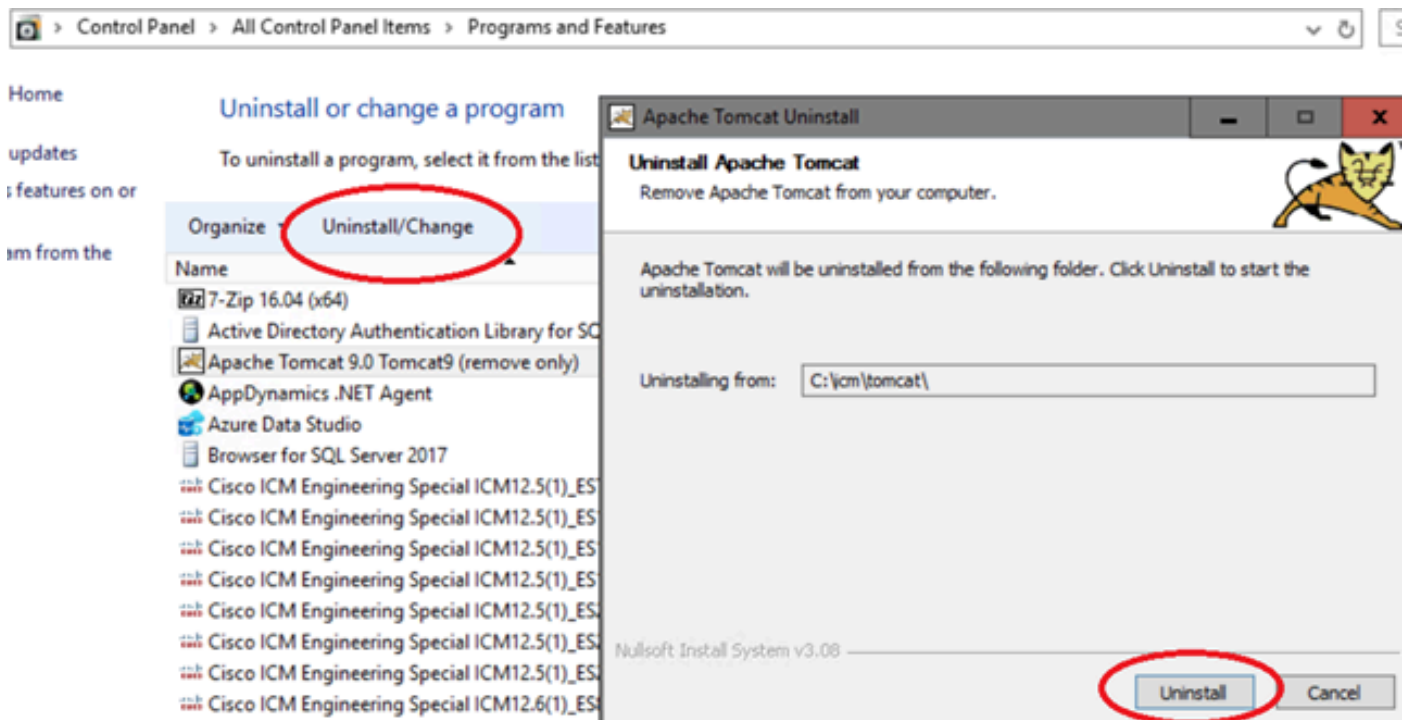
Active Directory Sites and Services

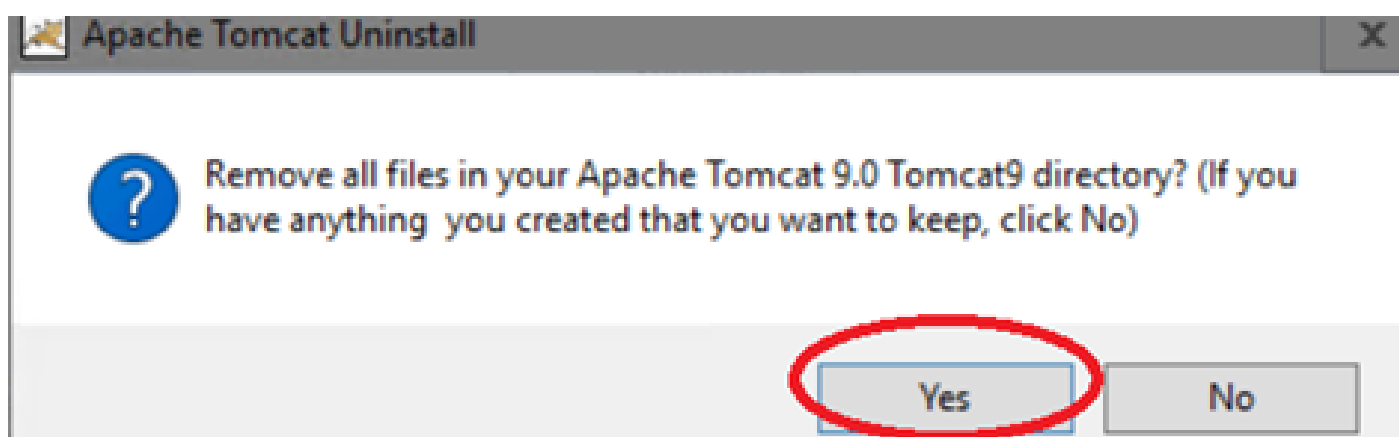
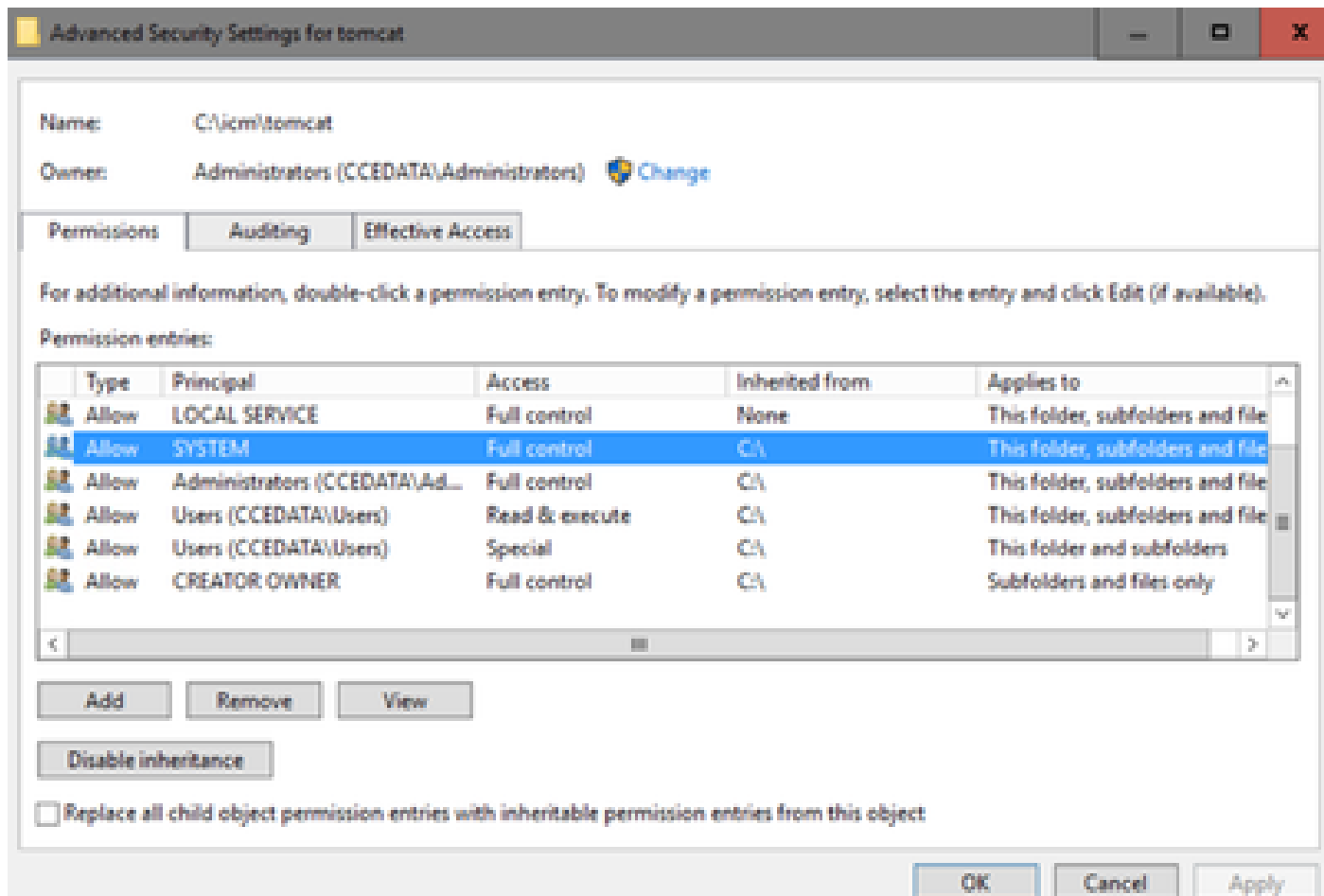


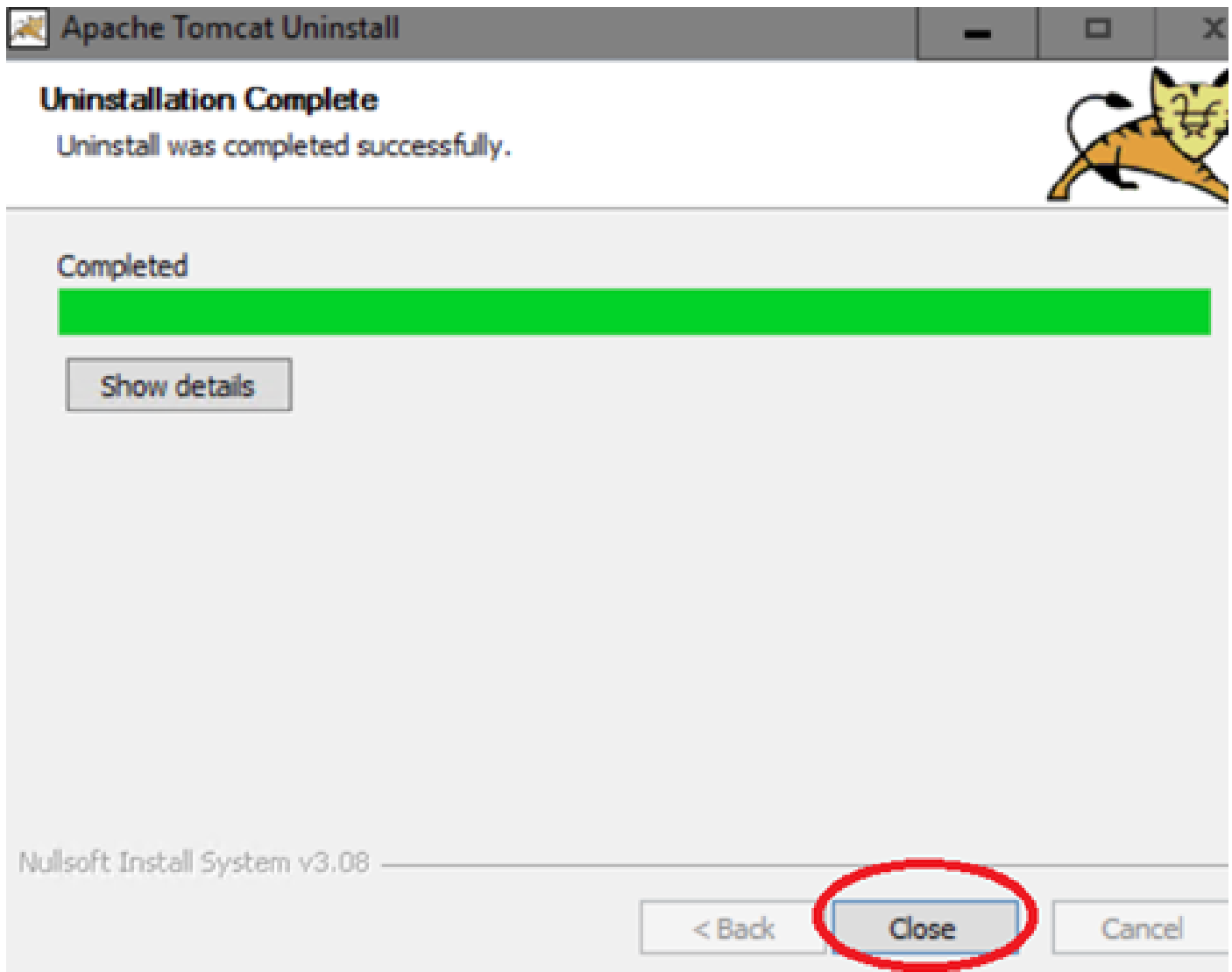
services.msc



2. Click **Uninstall/Change**:







Install Tomcat

Step 1. Copy the Apache Tomcat installer (the EXE file) to c:\Temp:



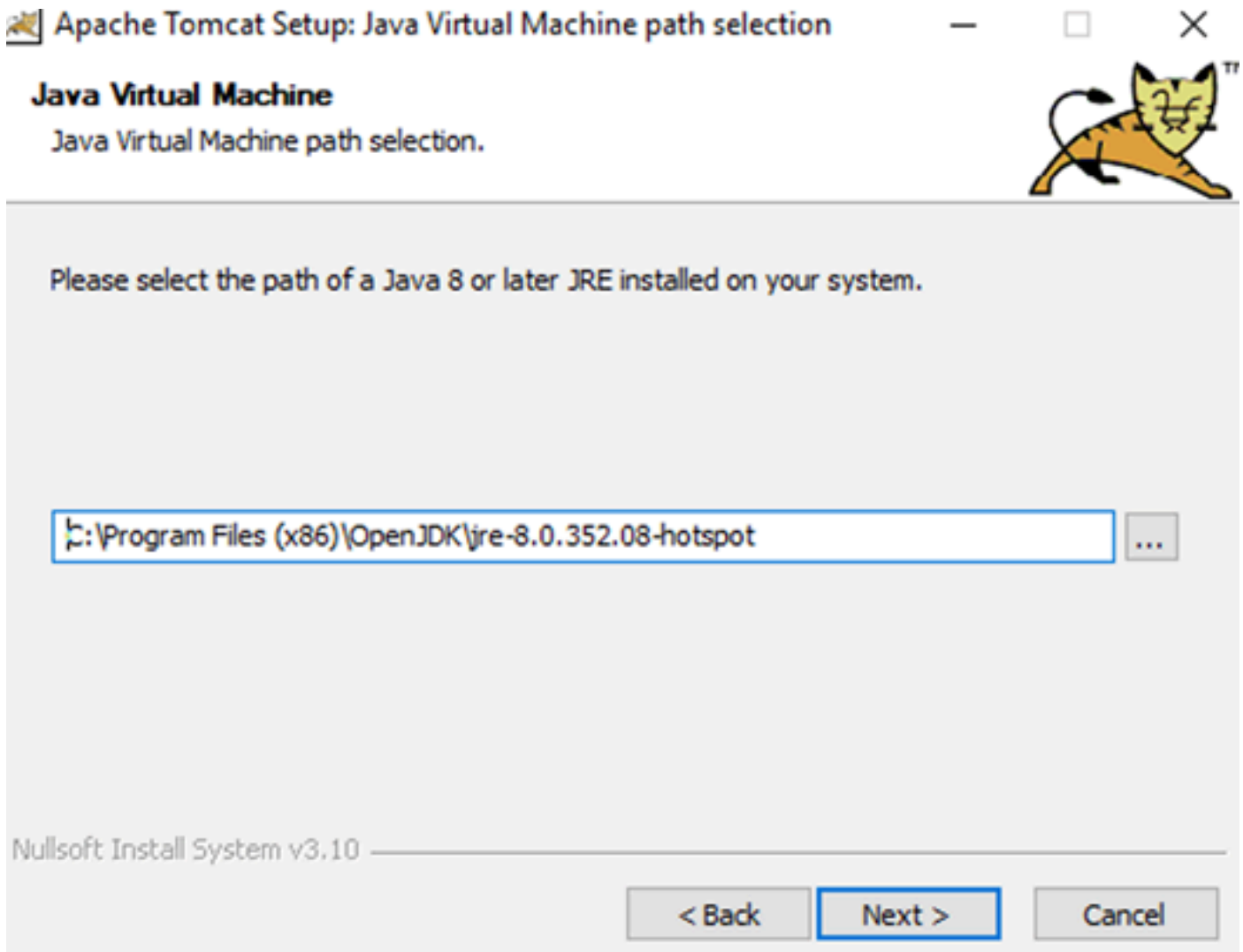
Step 2. From CMD as administrator run the installer using this command:



Note: Your version can be different: `C:\temp\apache-tomcat-9.0.89.exe /s /D=C:\icm\tomcat`.

```
C:\Users\administrator.DCLOUD>C:\temp\apache-tomcat-9.0.89.exe /s /D=C:\icm\tomcat
```

Step 3. Proceed with the prompts to install. There is only one option you need to modify or search, and that is for the JRE folder.



Backup Tomcat Folder to Delete Tomcat Directories

Once the install is complete, prior to beginning work the Tomcat Folder needs to be backed up in case the need to start over.

Step 1. Backup the Tomcat folder created:

c:\icm\tomcat

Step 2. Delete the directory, 'C:\icm\tomcat\webapps\docs'

Step 3. Delete the directory, 'C:\icm\tomcat\webapps\manager'

Step 4. Delete the directory, 'C:\icm\tomcat\webapps\ROOT'

Copy Tomcat Files

Step 1. Open CMD as administrator and run these 4 queries :

- **copy /Y C:\icm\bin\setup.war C:\icm\tomcat\webapps\setup.war**
- **copy /Y C:\icm\install\unifiedconfig.war C:\icm\tomcat\webapps\unifiedconfig.war**
- **copy /Y C:\icm\install\cceadmin.war C:\icm\tomcat\webapps\cceadmin.war**
- **copy /Y C:\icm\install\ccbu-common-shindig-server.war C:\icm\tomcat\webapps\ROOT.war**

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\setup.war C:\icm\tomcat\webapps\setup.war
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\install\unifiedconfig.war C:\icm\tomcat\webapps\unifiedconfig.war
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\install\cceadmin.war C:\icm\tomcat\webapps\cceadmin.war
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\install\ccbu-common-shindig-server.war C:\icm\tomcat\webapps\ROOT.war
1 file(s) copied.

C:\Users\administrator.DCLOUD>_
```

Step 2. From the command prompt, execute these steps:

1. **"%CCE_JAVA_HOME%\bin\java" -cp C:\icm\bin Unzip C:\icm\install\unifiedconfig-realm-assembly.zip C:\icm\tomcat\lib**
2. **"%CCE_JAVA_HOME%\bin\java" -cp C:\icm\bin Unzip C:\icm\install\shindig-cache-assembly.zip C:\icm\tomcat\lib**

```
C:\Users\administrator.DCLOUD>"%CCE_JAVA_HOME%\bin\java" -cp C:\icm\bin Unzip C:\icm\install\unifiedconfig-realm-assembly.zip C:\icm\tomcat\lib
Unzipping file C:\icm\install\unifiedconfig-realm-assembly.zip to C:\icm\tomcat\lib
Completed extraction

C:\Users\administrator.DCLOUD>"%CCE_JAVA_HOME%\bin\java" -cp C:\icm\bin Unzip C:\icm\install\shindig-cache-assembly.zip C:\icm\tomcat\lib
Unzipping file C:\icm\install\shindig-cache-assembly.zip to C:\icm\tomcat\lib
Completed extraction

C:\Users\administrator.DCLOUD>_
```

Step 3. From the command prompt, execute these steps to copy the jar files from ICM to tomcat directory:

1. **copy /Y C:\icm\bin\catalina.properties C:\icm\tomcat\conf\catalina.properties**
2. **copy /Y C:\icm\bin\icm-websetup-shared.jar C:\icm\tomcat\lib\icm-websetup-shared.jar**
3. **copy /Y C:\icm\bin\registry.jar C:\icm\tomcat\lib\registry.jar**
4. **copy /Y C:\icm\bin\jntservices.jar C:\icm\tomcat\lib\jntservices.jar**
5. **md C:\icm\tomcat\bin\i386 (Make Directory)**
6. **copy /Y C:\icm\bin\isapi_redirect.dll C:\icm\tomcat\bin\i386\isapi_redirect.dll**
7. **copy /Y C:\icm\bin\web.xml C:\icm\tomcat\conf\web.xml**
8. **copy /Y C:\icm\bin\catalina-jmx-remote.jar C:\icm\tomcat\lib\catalina-jmx-remote.jar**
9. **copy /Y C:\icm\install\web.config C:\icm\tomcat\bin\i386\web.config**
10. **copy /Y C:\icm\bin\server.xml.IIS.custom C:\icm\tomcat\conf\server.xml**

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\catalina.properties C:\icm\tomcat\conf\catalina.properties
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\icm-websetup-shared.jar C:\icm\tomcat\lib\icm-websetup-shared.jar
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\registry.jar C:\icm\tomcat\lib\registry.jar
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\jntservices.jar C:\icm\tomcat\lib\jntservices.jar
1 file(s) copied.

C:\Users\administrator.DCLOUD>md C:\icm\tomcat\bin\i386

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\isapi_redirect.dll C:\icm\tomcat\bin\i386\isapi_redirect.dll
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\web.xml C:\icm\tomcat\conf\web.xml
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\catalina-jmx-remote.jar C:\icm\tomcat\lib\catalina-jmx-remote.jar
1 file(s) copied.

C:\Users\administrator.DCLOUD>copy /Y C:\icm\install\web.config C:\icm\tomcat\bin\i386\web.config
1 file(s) copied.











C:\Users\administrator.DCLOUD>copy /Y C:\icm\bin\server.xml.IIS.custom C:\icm\tomcat\conf\server.xml
1 file(s) copied.

C:\Users\administrator.DCLOUD>
```

Add Missing Files

Step 1. In the next step, move over two files: uriworkermmap.properties and workers.properties from a working server, where the Tomcat install is working correctly.

1. Notice the two files are missing.

This PC > Local Disk (C:) > icm > tomcat > conf		
Name	Size	Type
 catalina.policy	13 KB	POLICY File
 catalina.properties	8 KB	PROPERTIES File
 logging.properties	5 KB	PROPERTIES File
 context.xml	2 KB	XML File
 jaspic-providers.xml	2 KB	XML File
 server.xml	5 KB	XML File
 tomcat-users.xml	3 KB	XML File
 web.xml	173 KB	XML File
 jaspic-providers.xsd	3 KB	XML Schema File
 tomcat-users.xsd	3 KB	XML Schema File

2. Copy the missing files from a working server.

This PC > Local Disk (C:) > icm > tomcat > conf			
Name	Size	Type	
catalina.policy	13 KB	POLICY File	
catalina.properties	8 KB	PROPERTIES File	
logging.properties	5 KB	PROPERTIES File	
uriworkermap.properties	1 KB	PROPERTIES File	
workers.properties	1 KB	PROPERTIES File	
context.xml	2 KB	XML File	
jaspic-providers.xml	2 KB	XML File	
server.xml	5 KB	XML File	
tomcat-users.xml	3 KB	XML File	
web.xml	173 KB	XML File	
jaspic-providers.xsd	3 KB	XML Schema File	
tomcat-users.xsd	3 KB	XML Schema File	

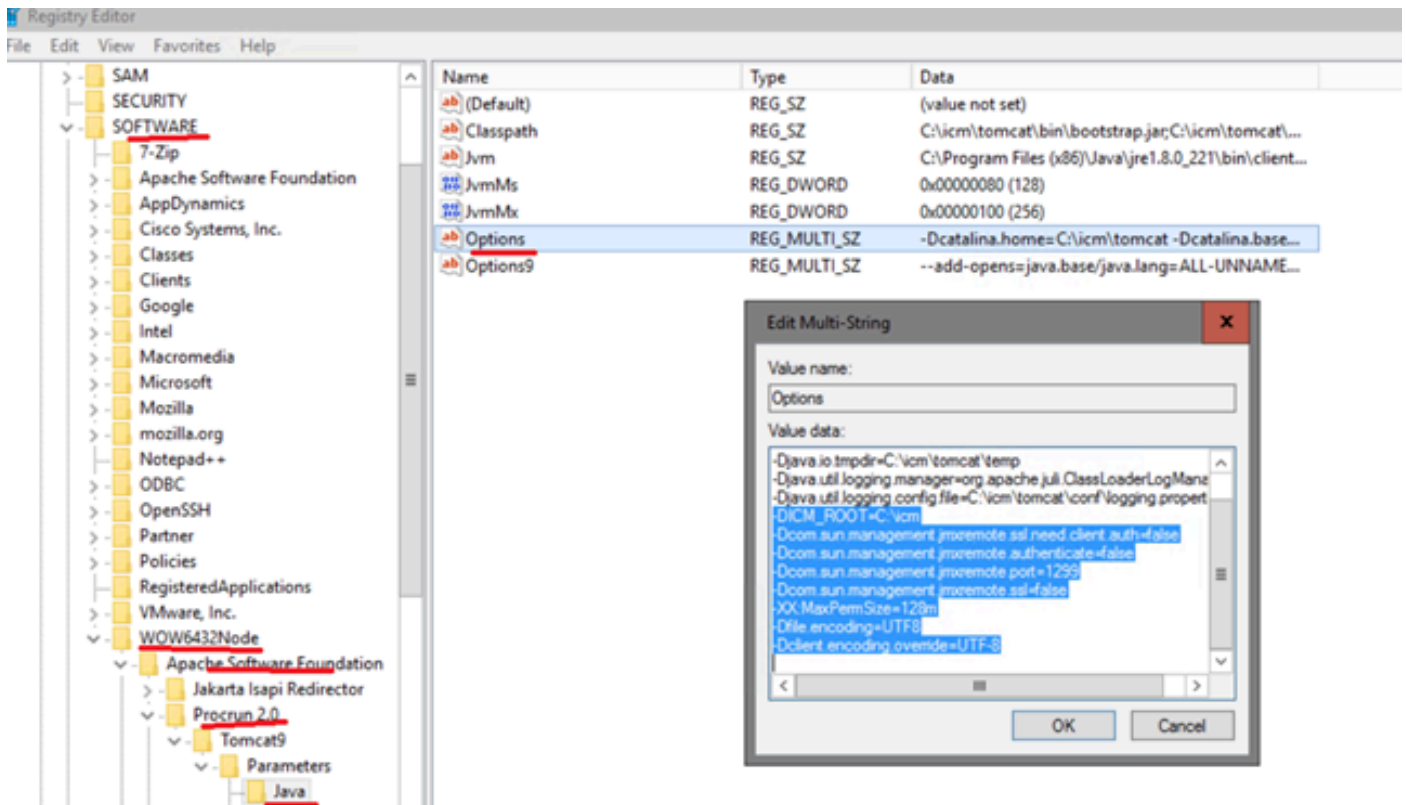
Step 2. Add missing registry information for options in Apache tomcat Registry key.

This information is Specific for ICM and is not added by default:

Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Apache Software Foundation\Procrun 2.0\Tomcat9\Parameters\Java

Information added to options Key subsequent to the last line in Options. The subsequent string must be add including the hyphens present:

- DICM_ROOT=C:\icm
- Dcom.sun.management.jmxremote.ssl.need.client.auth=false
- Dcom.sun.management.jmxremote.authenticate=false
- Dcom.sun.management.jmxremote.port=1299
- Dcom.sun.management.jmxremote.ssl=false
- XX:MaxPermSize=128m
- Dfile.encoding=UTF8
- Dclient.encoding.override=UTF-8



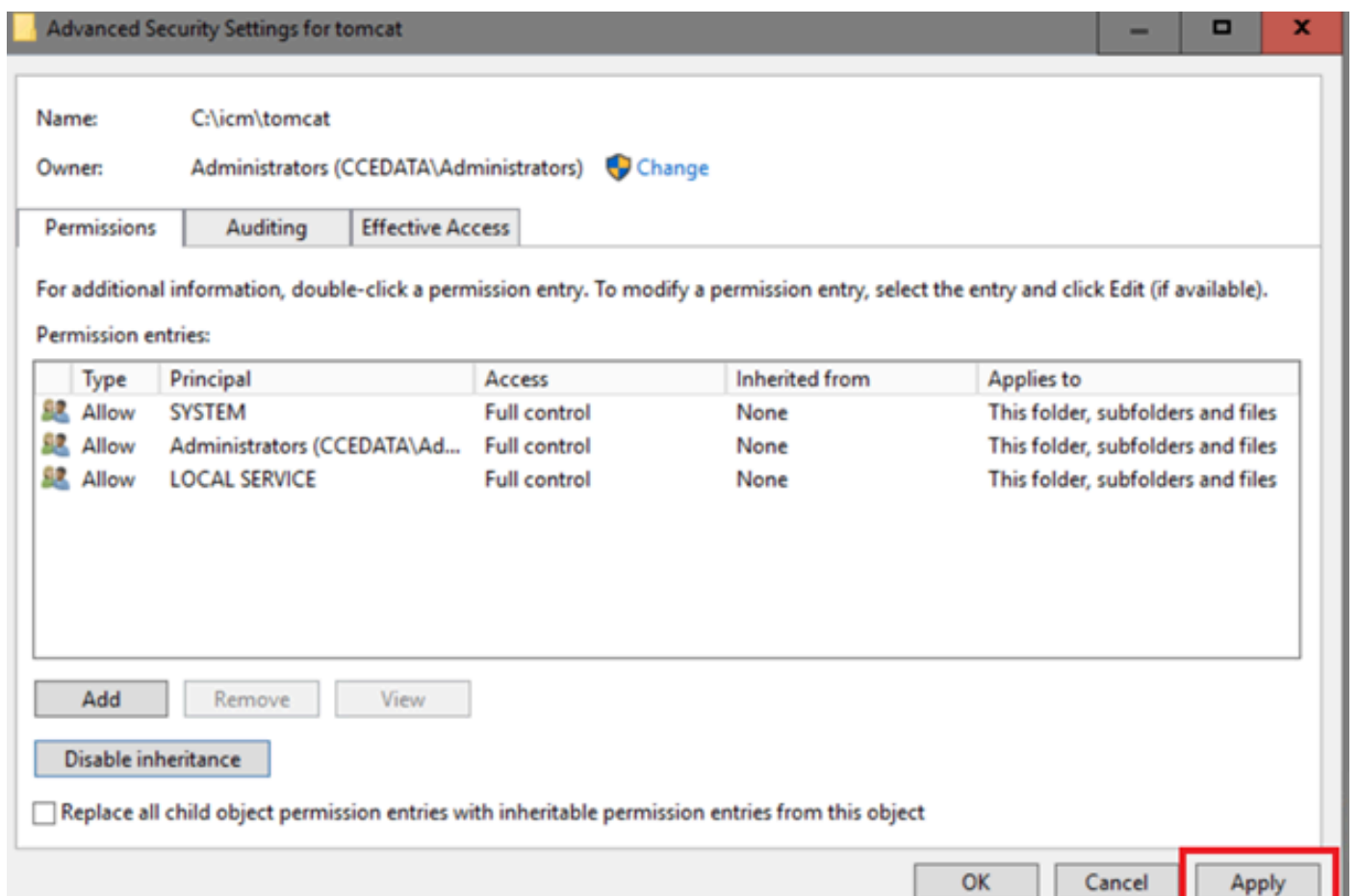
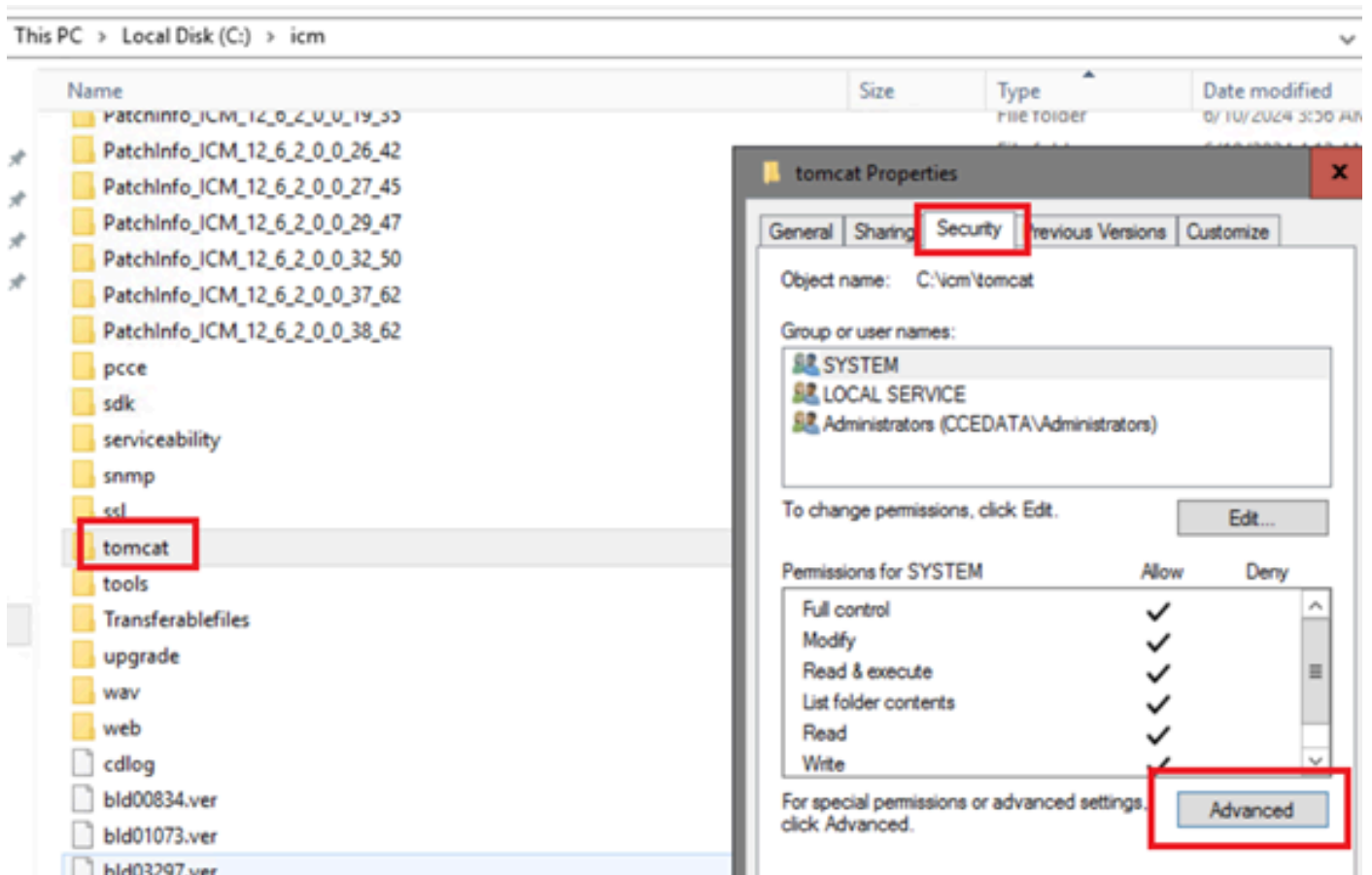
Enable Inheritance and Start the Tomcat Service

Step 1. Last step before starting tomcat and IIS service is to validate inheritance for the folder. If you miss this step, a 500 internal server error is returned when IIS attempts to use the redirect isapi.dll file.

As IIS no longer has permissions for the Tomcat Folder:

1. Navigate to c:\icm\
2. Find the folder Tomcat.
3. Right click and select properties.
4. Choose **Security > Advanced**.
5. Click **Enable Inheritance**.
6. Click **Apply**.

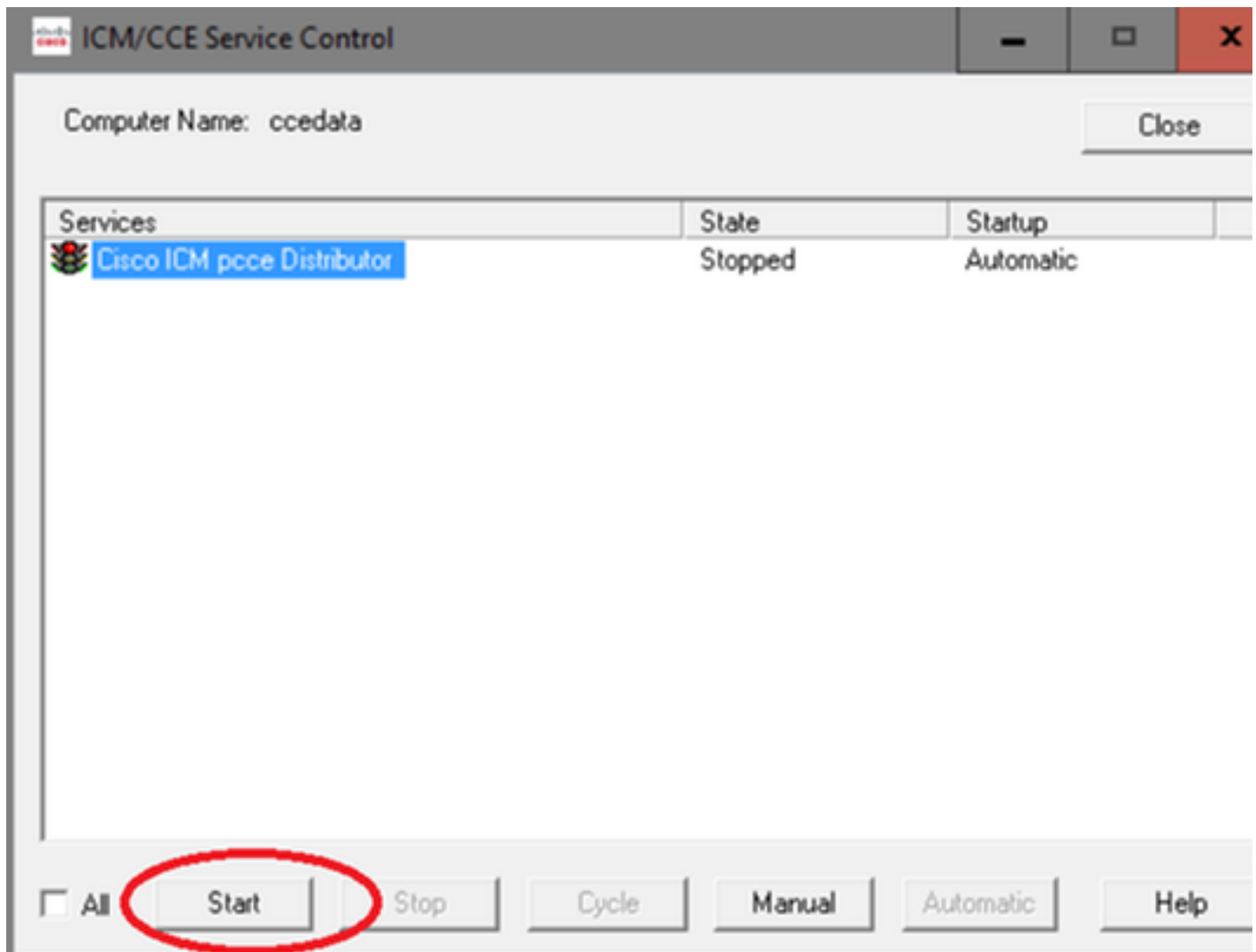
The user rights inherited are from c:\icm.



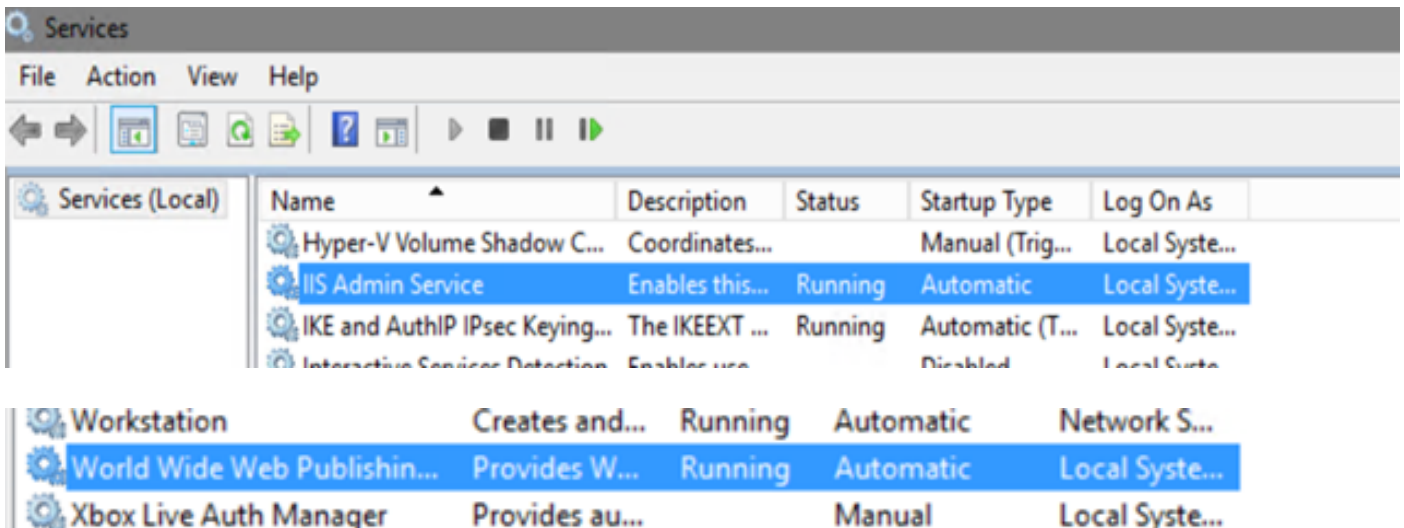
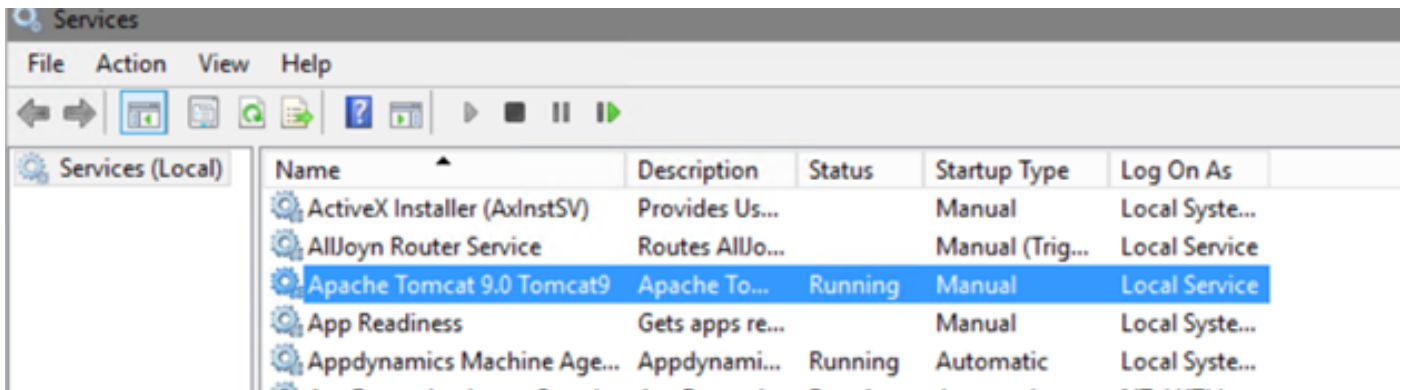
Step 2. Verify the updated version is installed by running the **version** command:


```
c:\ica\tomcat\bin>version.bat
Using CATALINA_BASE:   "c:\ica\tomcat"
Using CATALINA_HOME:   "c:\ica\tomcat"
Using CATALINA_TMPDIR: "c:\ica\tomcat\temp"
Using JRE_HOME:        "C:\Program Files (x86)\Java\jre1.8.0_221"
Using CLASSPATH:       "c:\ica\tomcat\bin\bootstrap.jar;c:\ica\tomcat\bin\tomcat-juli.jar"
Server version: Apache Tomcat/9.0.89
Server built:   May 3 2024 20:22:11 UTC
Server number: 9.0.89.0
OS Name:       Windows Server 2016
OS Version:    10.0
Architecture: x86
JVM Version:   1.8.0_221-b11
JVM Vendor:    Oracle Corporation
```

Step 3. Start the distributor service.



Step 4. Start Apache Tomcat, IIS, and World wide web service from services.msc:



Verify

Validate if the cceadmin page loads without issues and able to log in:

