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Setup:Installation Guide/System Preparation/Windows /Apache Tomcat

A [quality version](#) of this page, [approved](#) on *2 August 2021*, was based off this revision.

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Apache Tomcat is required for the PDF export, VisualDiff (BlueSpice pro only) and the LaTeX renderer (BlueSpice pro only). The following steps are optional and only required if you want to use one or more of these services in your BlueSpice installation.



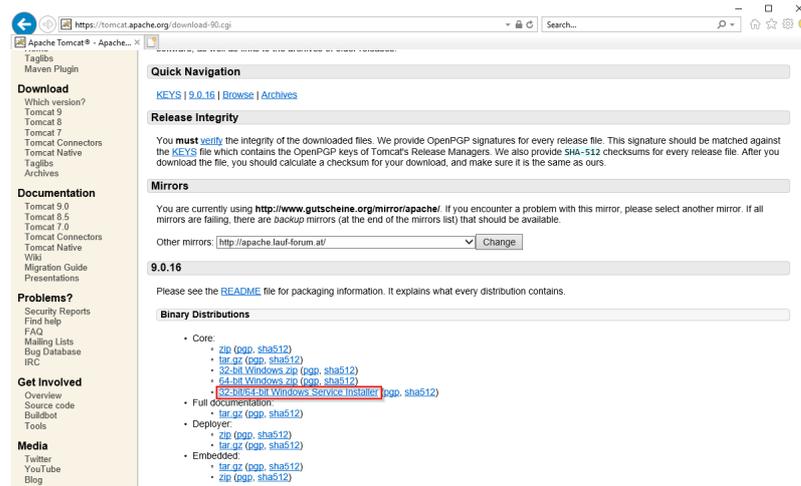
Operation of Apache Tomcat requires [OpenJDK](#). If you have not installed it, follow the link above.

Download

Open the [official download page](#) (1) in your browser and go to the [version 9 \(2\)](#) download page.

The screenshot shows the Apache Tomcat website. The browser address bar shows 'http://tomcat.apache.org'. The page title is 'Apache Tomcat®'. The main content area has a search bar and a 'GO' button. Below the search bar, there are several sections: 'Apache Tomcat' (Home, Taglibs, Maven Plugin), 'Download' (Which version?, Tomcat 9 (2), Tomcat 7, Tomcat Connectors, Tomcat Native, Taglibs, Archives), 'Documentation' (Tomcat 9.0, Tomcat 8.5, Tomcat 7.0, Tomcat Connectors, Tomcat Native, Wiki, Migration Guide, Presentations), and 'Problems?' (Security Reports, Find help, FAQ, Mailing Lists, Bug Database). The 'Download' section is highlighted with a red circle and a '2' in a red circle. The 'Tomcat 7.0.93 Released' section is also visible, with a date of '2019-02-21'. The 'Tomcat 9.0.16 Released' section is also visible, with a date of '2019-02-08'.

Download the "32-bit/64-bit Windows Service Installer"



Please note that the download on your Windows server with Internet Explorer only works if you have configured the Internet Explorer Advanced Security Settings in the Server Manager. Please refer to the technical documentation from Microsoft.

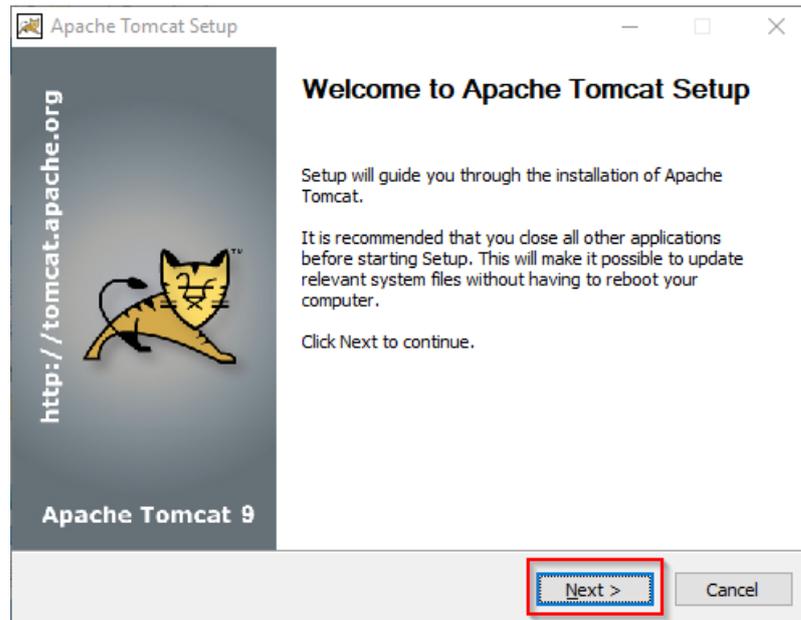


This guide uses version 9.0.16 of Apache Tomcat and is just an example of the latest version that you can download at the time of installation.

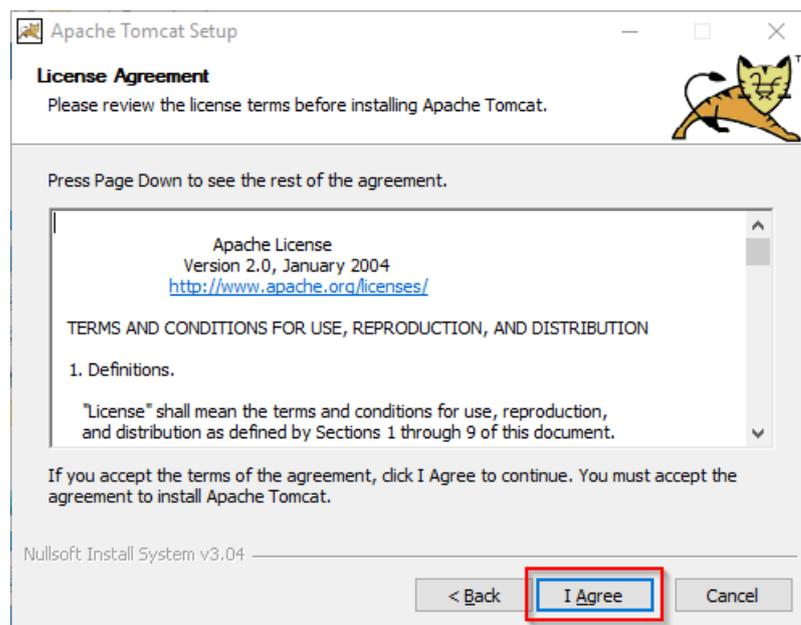
Installing Apache Tomcat

Open the downloaded file "apache-tomcat-9.0.16.exe".

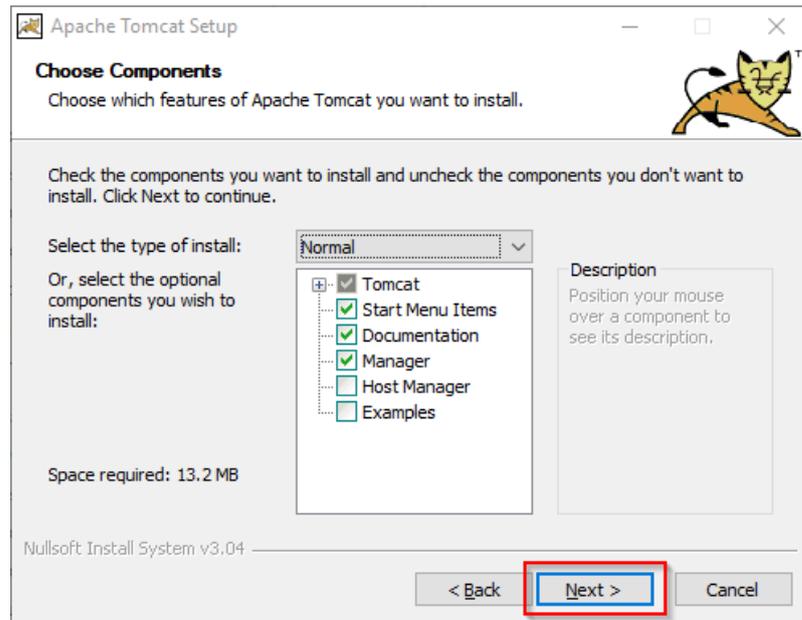
Start the installation by clicking "Next >":



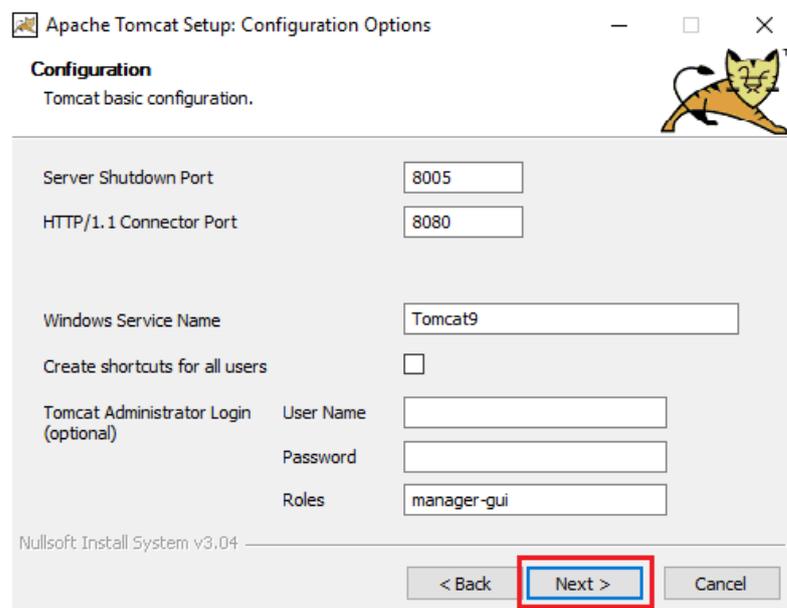
Confirm the license agreement by clicking "I Agree":



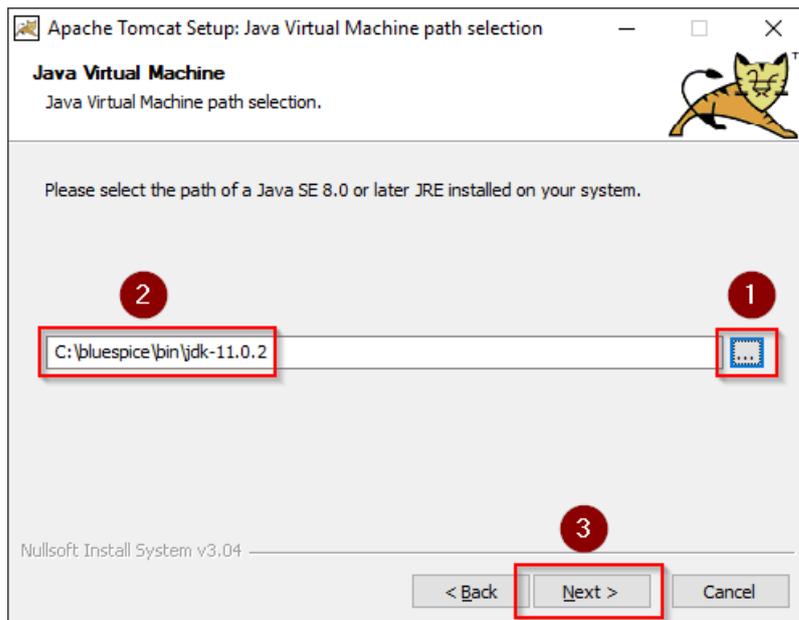
Click "Next >":



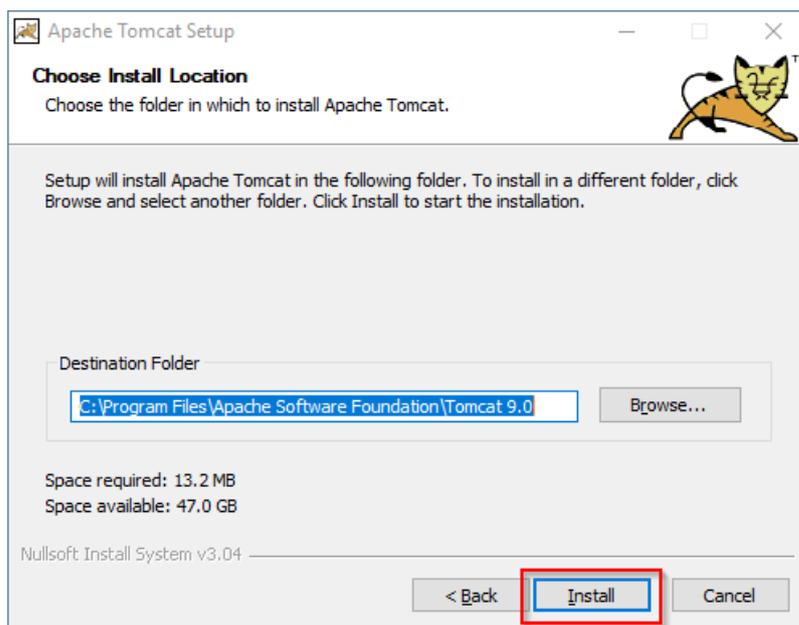
Click "Next >" again:



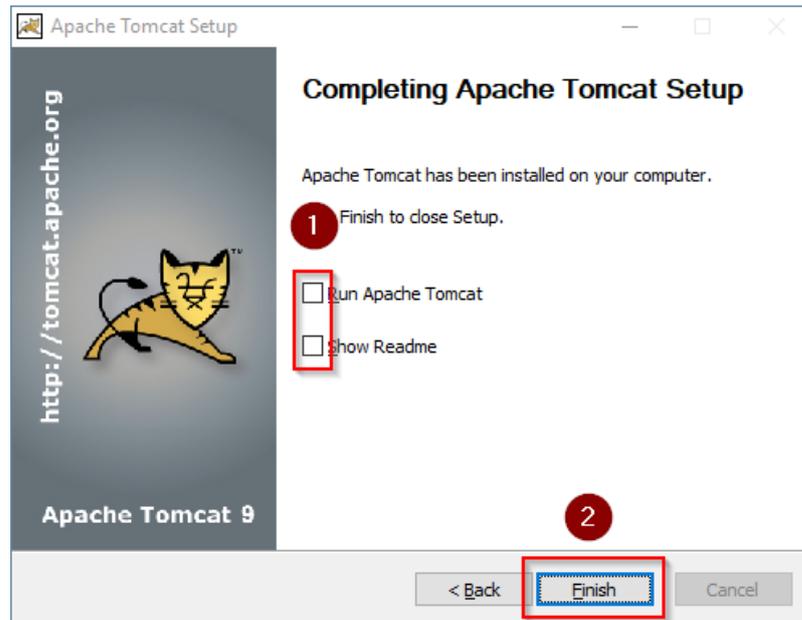
Select (1) the home directory of your [OpenJDK Installation](#) (2) and click "Next>" (3):



Start the Tomcat Installation:



At the end of the installation, leave both preselected checkboxes (1) and finish the setup (2)



Configuring Apache Tomcat

Change to the installation directory of Tomcat. By default, you can find it at `C:\Program Files\Apache Software Foundation\Tomcat 9.0\conf`.

Open the context.xml file in a text editor and replace the one-time line

```
<Context>
```

with

```
<Context mapperContextRootRedirectEnabled="true">
```

```

1  <?xml version="1.0" encoding="UTF-8" ?>
2
3  <!-- Licensed to the Apache Software Foundation (ASF) under one or more
4  contributor license agreements. See the NOTICE file distributed with
5  this work for additional information regarding copyright ownership.
6  The ASF licenses this file to You under the Apache License, Version 2.0
7  (the "License"); you may not use this file except in compliance with
8  the License. You may obtain a copy of the License at
9
10     http://www.apache.org/licenses/LICENSE-2.0
11
12  Unless required by applicable law or agreed to in writing, software
13  distributed under the License is distributed on an "AS IS" BASIS,
14  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
15  See the License for the specific language governing permissions and
16  limitations under the License.
17
18  -->
19  <Context mapperContextRootRedirectEnabled='true' />
20
21  <!-- Default set of monitored resources. If one of these changes, the
22  <!-- web application will be reloaded. -->
23  <WatchedResource>WEB-INF/web.xml</WatchedResource>
24  <WatchedResource>WEB-INF/tomcat-web.xml</WatchedResource>
25  <WatchedResource>${catalina.base}/conf/web.xml</WatchedResource>
26
27  <!-- Uncomment this to disable session persistence across Tomcat restarts -->
28  <!--
29  <Manager pathname="" />
30  -->
31  </Context>
32

```

Save and close the file.

In the same directory, open the file server.xml in a text editor and make sure that the complete block

```

<Connector port="8080" protocol="HTTP/1.1"
... />

```

looks like this:

```

<Connector port="8080" protocol="HTTP/1.1"
connectionTimeout="20000"
URIEncoding="UTF-8"
redirectPort="8443"
address="127.0.0.1" />

```

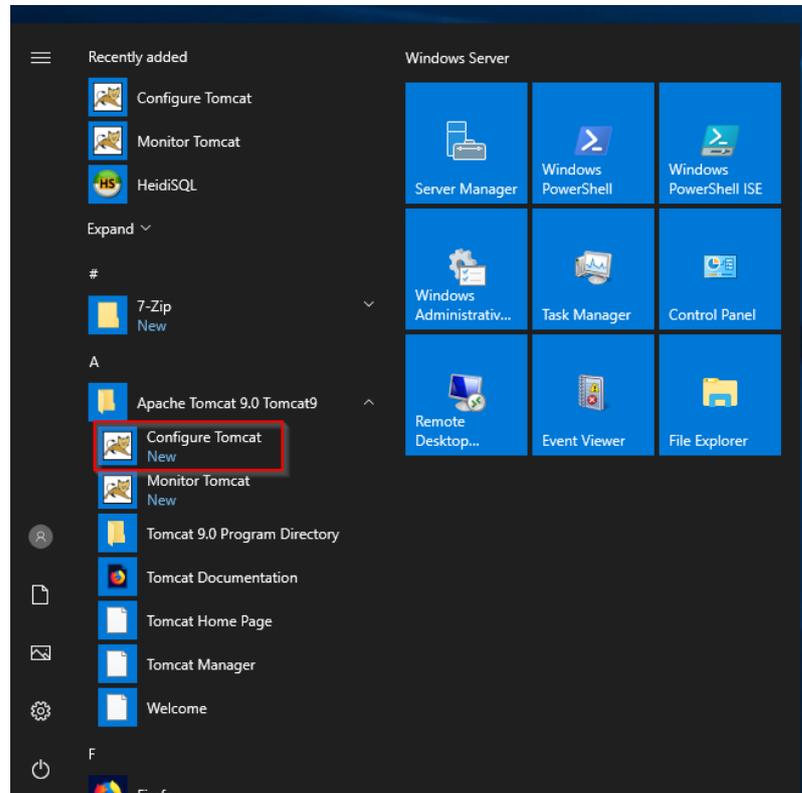
```

52  <!-->
53  <Service name="Catalina">
54
55  <!-- The connectors can use a shared executor, you can define one or more named thread pools-->
56  <!--
57  <Executor name="tomcatThreadPool" namePrefix="catalina-exec-"
58  maxThreads="150" minSpareThreads="4"/>
59  -->
60
61
62  <!-- A "Connector" represents an endpoint by which requests are received
63  and responses are returned. Documentation at :
64  Java HTTP Connector: /docs/config/http.html
65  Java AJP Connector: /docs/config/ajp.html
66  APR (HTTP/AJP) Connector: /docs/apr.html
67  Define a non-SSL/TLS HTTP/1.1 Connector on port 8080
68
69  <Connector port="8080" protocol="HTTP/1.1"
70  connectionTimeout="20000"
71  URIEncoding="UTF-8"
72  redirectPort="8443"
73  address="127.0.0.1" />
74
75  <!-- Define a standard HTTP/1.1 Connector using a shared thread pool-->
76  <!--
77  <Connector executor="tomcatThreadPool"
78  port="8080" protocol="HTTP/1.1"
79  connectionTimeout="20000"
80  redirectPort="8443" />
81  -->
82  <!-- Define a SSL/TLS HTTP/1.1 Connector on port 8443
83  This connector uses the NIO implementation. The default
84  SSLImplementation will depend on the presence of the APR/native
85  library and the useOpenSSL attribute of the

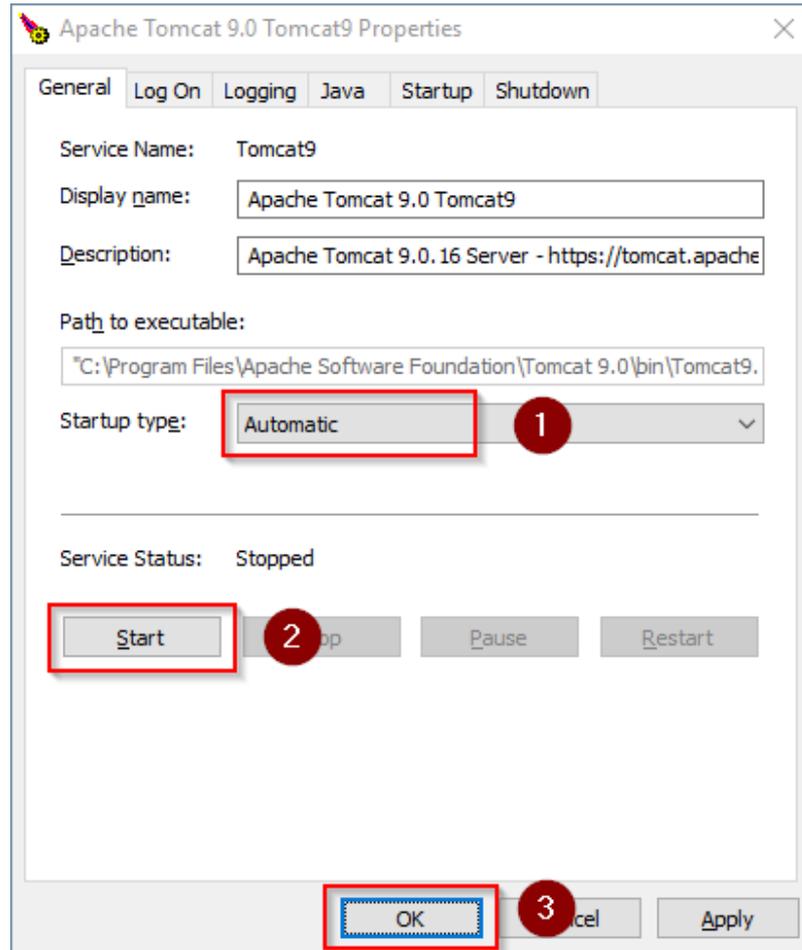
```

Save and close the file.

Find the entry "Configure Tomcat" in the start menu and open it:



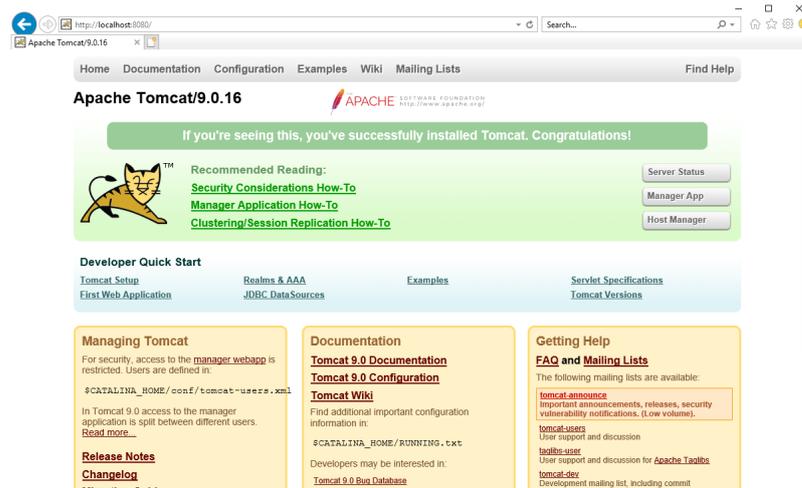
Set "Startup type" to "Automatic" (1) and start Tomcat (2). Then exit the configuration console (3):



Reviewing the installation

To check if Tomcat is working correctly, open the address <http://localhost:8080/> in a browser on the server.

You should now see the homepage of the Tomcat server:



Installing the web apps

After the successful installation of BlueSpice, please follow the next steps to install the web services and activate the respective BlueSpice extension:

- [PDF-Export](#)
- [VisualDiff](#) (BlueSpice pro only)
- [LatexRenderer](#) (nurBlueSpice pro only)

Next step

If you have completed all steps successfully, you can delete the previously downloaded "apache-tomcat-9.0.16.exe" file from your hard drive and continue to the next step "[Elasticsearch](#)".

Elasticsearch on Windows

A [quality version](#) of this page, [approved](#) on *16 December 2021*, was based off this revision.

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Elasticsearch is a prerequisite for running Advanced Search. The steps listed here are optional and only required if you plan to use them in your BlueSpice installation.



To run Elasticsearch, OpenJDK is required. If you have not installed it, [install it now](#).

Download Elasticsearch

BlueSpice is currently compatible with Elasticsearch 6.8.x as of version 6.8.21. Elasticsearch > 6.8.x is currently **NOT supported!**

The latest version can be found at [this list](#). This results in the following direct download link: <https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-<version number>.zip>. For example, <https://artifacts.elastic.co/downloads/elasticsearch/elasticsearch-6.8.21.zip>.

Follow the download instructions of your browser.



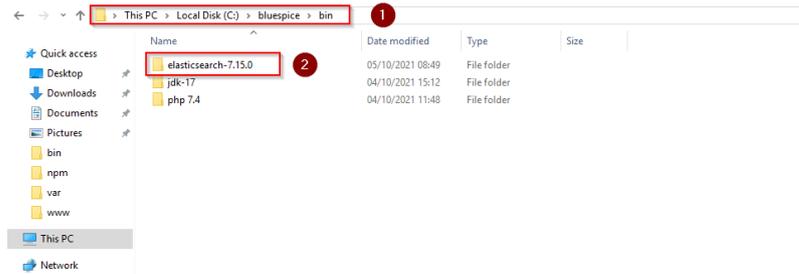
Please note that the download on your Windows Server with Internet Explorer will only work if you have configured the Internet Explorer Advanced Security Settings in the Server Manager. Please refer to the technical documentation from Microsoft.



In the following, Elasticsearch version 6.8.21 is used and is only an example of the latest version of the 6.8.x version, which you can download at the time of your installation.

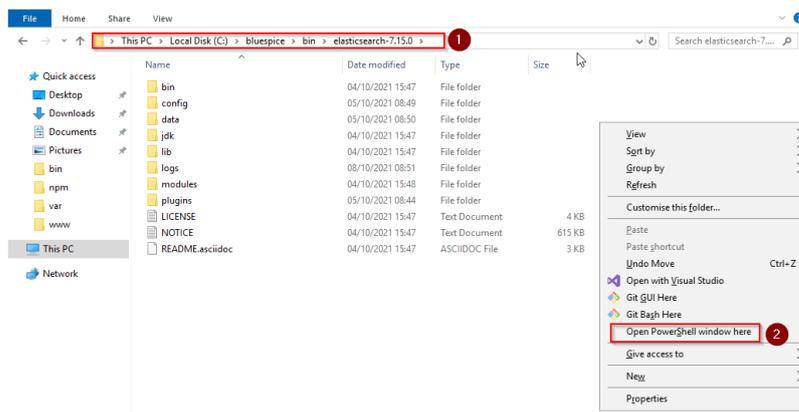
Unpacking Elasticsearch

Unpack the contents of the ZIP archive (2) just downloaded into the folder "C:\bluespice\bin\elasticsearch-6.8.21" (1):

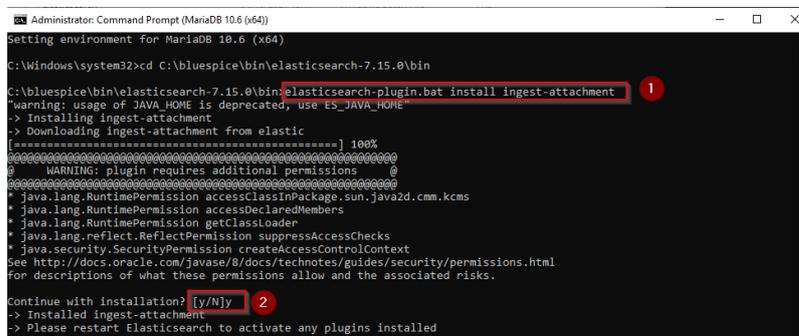


Installing the plugin ingest-attachment

Change to the directory "C:\bluespice\bin\elasticsearch-6.8.21\bin" (1) and right-click on a free area of the Explorer window with the Shift key pressed. Then click "Open Windows Powershell Here" (2):



Execute the command "elasticsearch-plugin.bat install ingest-attachment" (1) and after downloading the plugin, confirm the installation request with "y" (2):





If your server does not have an active internet connection, then [download the plug-in ingest-attachment as zip archive](#) and install it, as [documented directly by the manufacturer](#).

Installing the Elasticsearch service

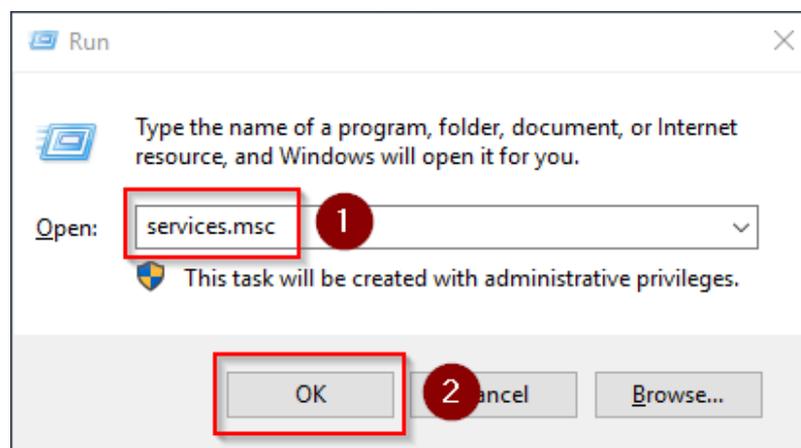
Next, run the `elasticsearch-service.bat` install command and wait for the process to complete:

```
C:\bluespice\bin\elasticsearch-7.15.0\bin>elasticsearch-service.bat install
Warning: usage of JAVA_HOME is deprecated, use ES_JAVA_HOME
Installing service : "elasticsearch-service-x64"
Using ES_JAVA_HOME (64-bit): "C:\bluespice\bin\jdk-17"
-Des.networkaddress.cache.ttl=60;-Des.networkaddress.cache.negative.ttl=10;-XX:+AlwaysPreTouch;-Xss1m;-Djava.awt.headless=true;-Dfile.encoding=UTF-8;-Djna.nosys=true;-XX:-OmitStackTraceInFastThrow;-XX:+ShowCodeDetailsInExceptionMessages;-Dio.netty.noUnsafe=true;-Dio.netty.noKeySetOptimization=true;-Dio.netty.recycler.maxCapacityPerThread=0;-Dio.netty.allocator.numDirectArenas=0;-Dlog4j.shutdownHookEnabled=false;-Dlog4j2.disable.jmx=true;-Djava.locale.providers=SPI,COMPAT;--add-opens=java.base/java.io=ALL-UNNAMED;-XX:+UseG1GC;-Djava.io.tmpdir=C:\Users\ADMINI~1\AppData\Local\Temp\elasticsearch;-XX:+HeapDumpOnOutOfMemoryError;-XX:HeapDumpPath=data;-XX:ErrorFile=logs/hs_err_pid%p.log;-Xlog:gc*,gc+age=trace,safepoint:file=logs/gc.log:utctime,pid,tags:filecount=32,filesize=64m;-Xms1023m;-Xmx1023m;-XX:MaxDirectMemorySize=536870912;-XX:G1HeapRegionSize=4m;-XX:InitiatingHeapOccupancyPercent=30;-XX:G1ReservePercent=15
The service "elasticsearch-service-x64" has been installed.
C:\bluespice\bin\elasticsearch-7.15.0\bin>
```

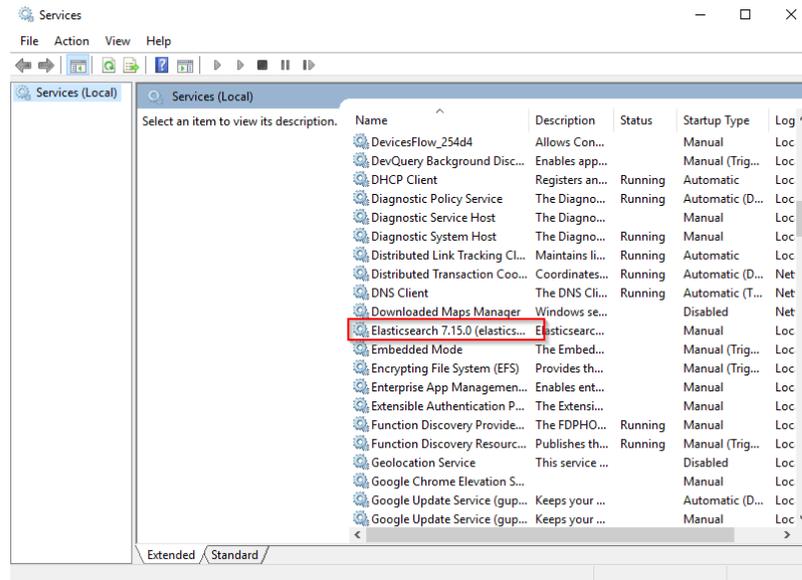
Configuring and starting the Elasticsearch service

Press the key combination Windows+R.

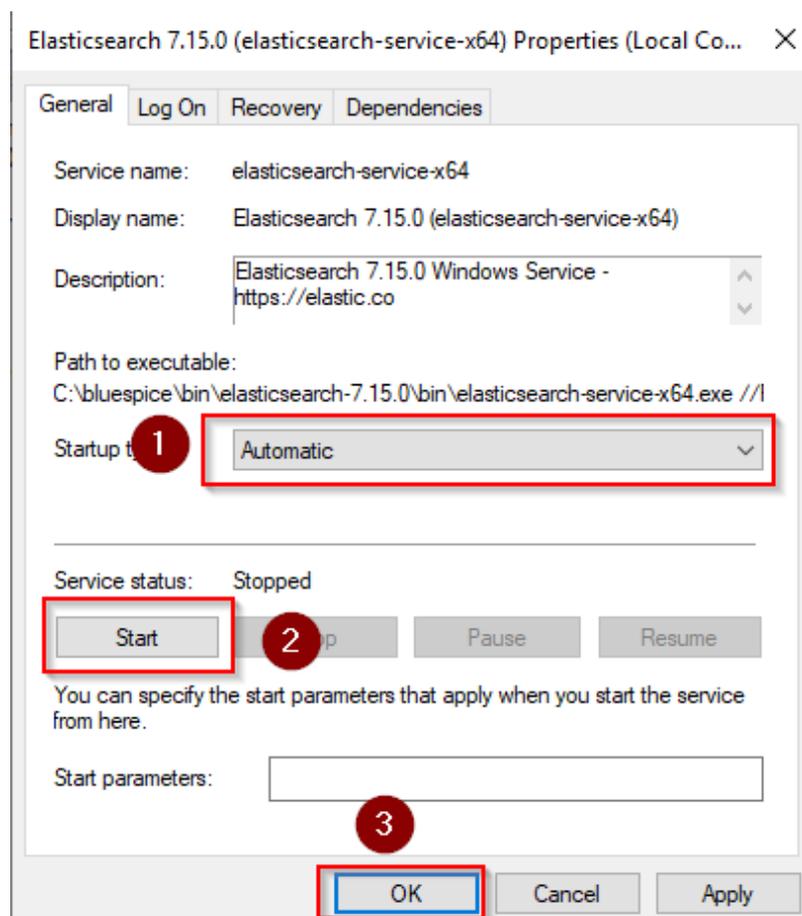
In the following dialog box, enter "services.msc" (1) und confirm with "OK" (2):



Search for the service "Elasticsearch 6.8.21" and open it with a double-click:



Select the startup type "Automatic" (1) and start the service (2). After the service is started, close the window with "OK" (3):



Next step

If you have completed all steps successfully, you can delete the previously downloaded file "elasticsearch-6.8.21.zip" from your hard disk and continue to the next step "[Git](#)".

OpenJDK on Windows

A [quality version](#) of this page, [approved](#) on *25 June 2020*, was based off this revision.

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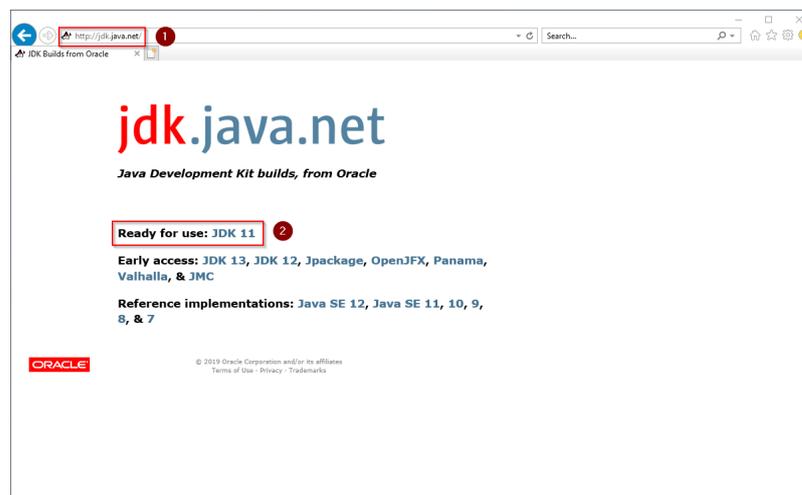
Java is a prerequisite for the operation of Advanced Search, PDF export, VisualDiff (BlueSpice pro only) and the LaTeX renderer (BlueSpice pro only). The steps listed here are optional and only required if you plan to use one or more of these services in your BlueSpice installation.

Introduction

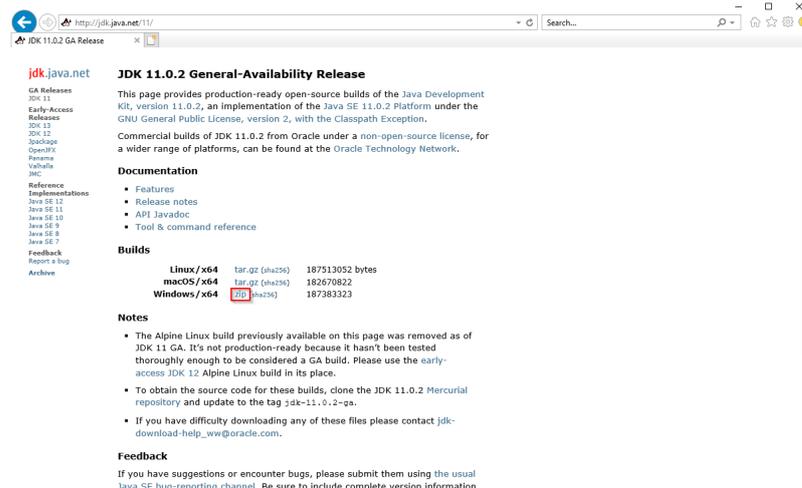
For licensing reasons, we decided to use the alternative OpenJDK published under the [GPL](#) instead of the Java Runtime Environment. Of course, you are free to use the JRE of <https://java.com/>, but here we only document OpenJDK.

Download

Open the [official download page](#) (1) in your browser and select the version marked "Ready for use" (2).



Select the ZIP archive in the 64bit version for Microsoft Windows



Follow the further download instructions and download the ZIP archive to your hard disk.



Please note that the download on your Windows Server with Internet Explorer will only work if you have configured the Internet Explorer Advanced Security Settings in the Server Manager. Please refer to the technical documentation from Microsoft.



In this guide, version 11.0.2 of OpenJDK is used and serves only as an example for the latest version, which you can download at the time of your installation.

Unpacking the ZIP archive

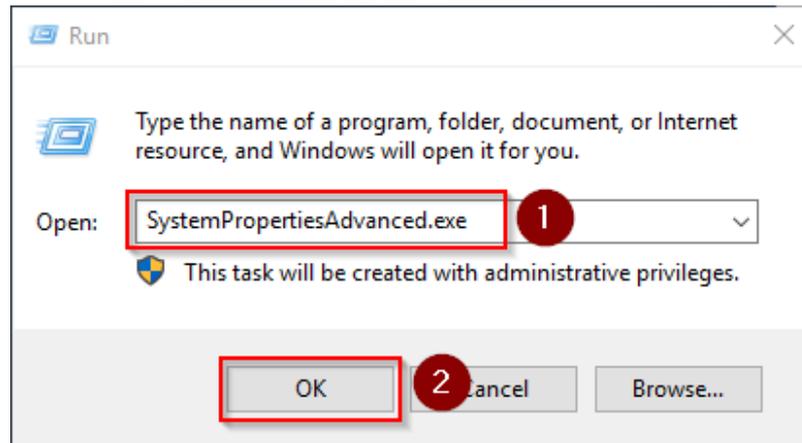
Unzip the ZIP archive that you just downloaded into a suitable system path on your hard drive.

{{Template:Hint|text=This documentation is based on the [[Setup: Installation Guide/Advanced /Windows_Folder_Sructure | folder structure recommended by us]]. For this reason, OpenJDK is unpacked into the folder C:\bluespice\bin\jdk-11.0.2. If you have different folder requirements, you must adapt these paths accordingly.}}

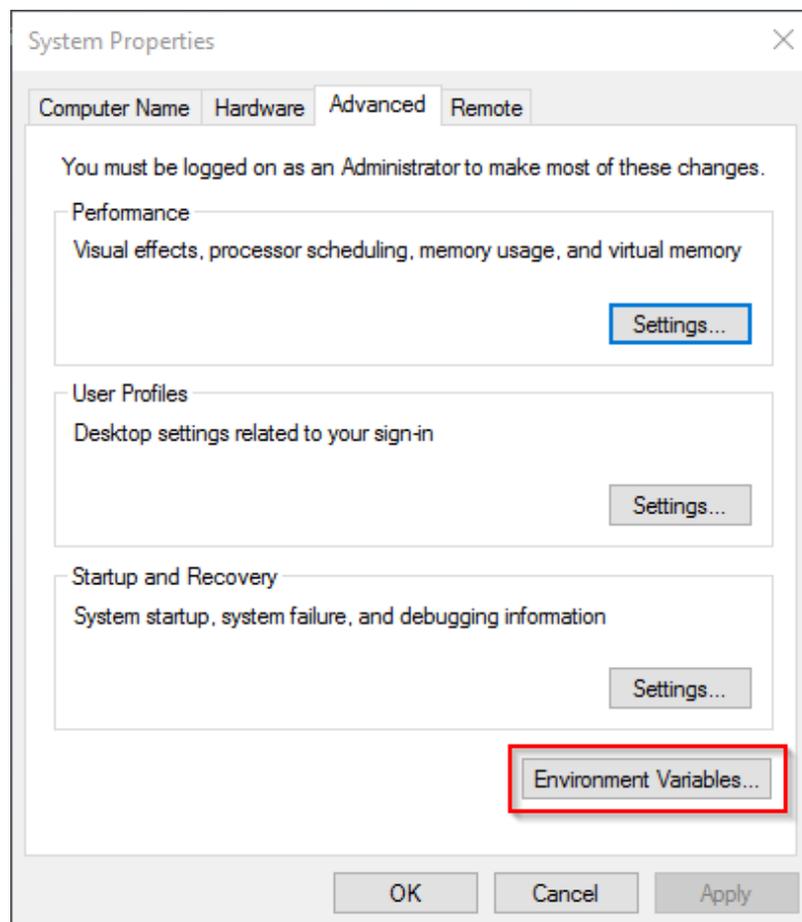
Setting the environment variable

Press the key combination Windows+R.

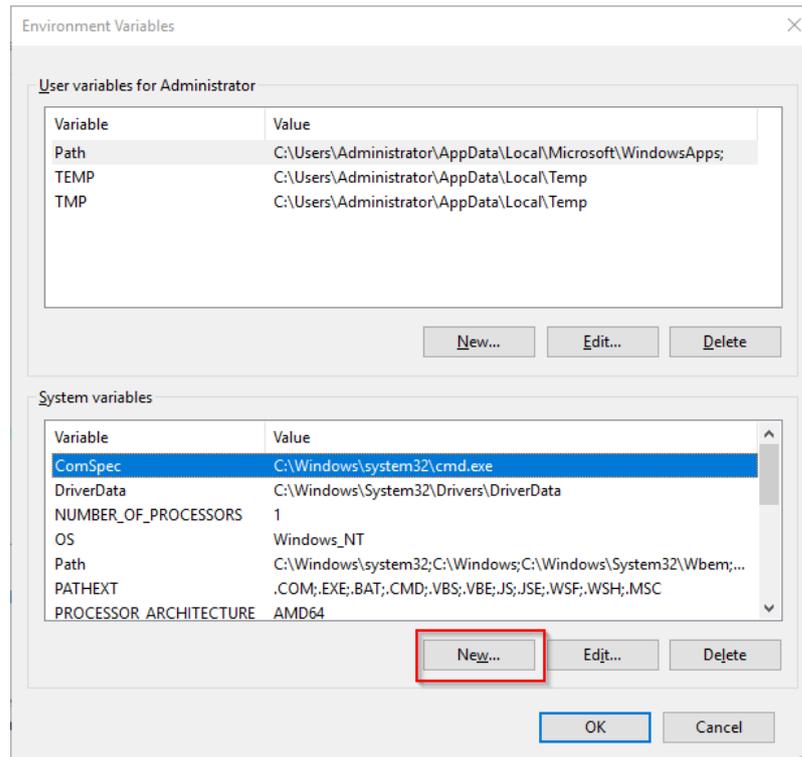
In the following dialog, enter "SystemPropertiesAdvanced.exe" (1) and confirm with OK (2):



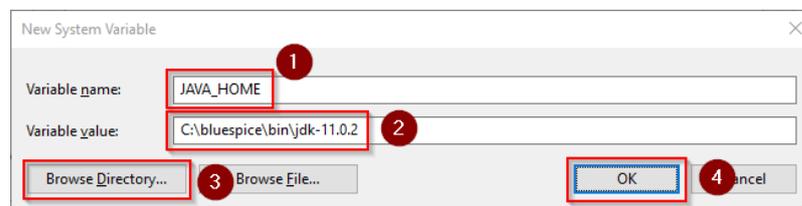
Click "environment variables":



Click "New...":



Set the name of the variable "JAVA_HOME" (1). As the value of the variable, specify the directory of your OpenJDK installation that you have just copied to C:\ bluespice\bin (2). Here you can use the "browse directory" button (3). Then click "OK" (4):



Close all newly opened windows one after the other by clicking on "OK".

Next step

If you have completed all steps successfully, you can delete the previously downloaded "openjdk-11.0.2_windows-x64_bin.zip" file from your hard disk and go to the next step "[Apache Tomcat](#)".

Webservice: LatexRenderer

A [quality version](#) of this page, [approved](#) on *13 September 2019*, was based off this revision.

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This document describes the installation of LatexRenderer for BlueSpice. **LatexRenderer is an exclusive component of BlueSpice pro!** Please note that [Apache Tomcat server](#) must be installed and configured on the BlueSpice server.

Tip for this Document

- Please, read this manual completely and work through the single installation steps one after another.
- For editing the configuration files with a text editor, the files must be saved in UTF-8 coding without BOM (Byte Order Mark).
- The placeholder `<installpath-bluespice>` stands for the path to your BlueSpice installation, e.g. `C:\inetpub\wwwroot\bluespice` (Windows) or `/var/www/bluespice` (Linux).
- The placeholder `<tomcat-webapps>` stands for the path to the Webapps directory of your Tomcat server, e.g. `C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps` (Windows) or `/var/lib/tomcat8/webapps` (Linux).

Installation of the LatexRenderer application

Move the file "BSLaTeX2PNG.war" from the directory `<installpath-bluespice>/extensions/BlueSpiceLatexRenderer/LatexRenderer/webservices` to `<tomcat-webapps>`

Restart Tomcat

Restart the Tomcat Webserver like described [here](#).

This completes the installation of LatexRenderer.

Troubleshooting

If there is a problem with LatexRenderer in BlueSpice, first check the [file system permissions](#).

Webservice: PDF-Export

A [quality version](#) of this page, [approved](#) on *19 September 2019*, was based off this revision.

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3	Enable PDF Export in BlueSpice	24
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Make sure that the [Apache Tomcat server](#) is completely installed and configured on the BlueSpice server before setting up PDF-Export.

Moving the BShtml2PDF Application

Download the file "BShtml2PDF.war" from <https://sourceforge.net/projects/bluespice/files/webservices/BShtml2PDF.war/download> and copy it to `<tomcat-webapps>`

The default paths are as follows:

- C:\Program Files\Apache Software Foundation\Tomcat 9.0\webapps (**Apache Tomcat on Windows**)
- /var/lib/jetty9/webapps (**Jetty on Debian**)

The application usually starts automatically without the need for rebooting the application server.

Checking the functionality

The correct functionality of the BShtml2PDF service can be checked as follows:

On Windows, open Internet Explorer using the URL `http://localhost:8080/BShtml2PDF`. With correct functionality, you should see the following website:



Enable PDF Export in BlueSpice

Go to the directory `<installpath-bluespice>/settings.d`. Open the file **020-BlueSpiceUEModulePDF.php** in a text editor.

In the second line is the code to activate the extension:

```
return; // Disabled. Needs Tomcat
```

You can either add a comment character (`#`) to the beginning of this line or delete the line completely, save the file and exit it.

Open a command line and change into the folder `<installpath-bluespice>`. Execute the following command:

```
php maintenance/update.php (Linux)
php maintenance\update.php (Windows)
```



In Windows, make sure that the environment variables are set correctly to access the "php" command.



Note that you must update the [file system permissions](#) after running update.php.

When the script is finished with the "Done" message, you have successfully installed the web service .

```
...event_agent field does not exist in echo_event table, skipping modify field patch.
Modifying event_variant field of table echo_event ...done.
Modifying event_extra field of table echo_event ...done.
Modifying event_agent_ip field of table echo_event ...done.
...have etp_id field in echo_target_page table.
...have notification_bundle_base field in echo_notification table.
...echo_event table does not contain event_timestamp field.
...have eeb_event_hash field in echo_email_batch table.
...have event_page_id field in echo_event table.
...index echo_event type already set on echo_event table.
...index echo_user_timestamp already set on echo_notification table.
Creating titlekey table...ok.
Rebuilding titlekey table...
... 1 ok.
...hitcounter table does not exist, skipping modify field patch.
Creating hit_counter_extension table ...done.
Creating hit_counter table ...done.
...page table does not contain page_counter field.
Creating bs_editnotifyconnector table ...done.
Creating bs_namespacemanager_backup_page table ...done.
Creating bs_namespacemanager_backup_revision table ...done.
Creating bs_namespacemanager_backup_text table ...done.
Adding page_content_model field to table bs_namespacemanager_backup_page ...done.
Adding rev_shal field to table bs_namespacemanager_backup_revision ...done.
Adding rev_content_model field to table bs_namespacemanager_backup_revision ...done.
Creating bs_permission_templates table ...done.
Creating bs_dashboards_configs table ...done.
Creating bs_usagetraacker table ...done.
Creating bs_pagetemplate table ...done.
Creating bs_pageassignments table ...done.
...se text field does not exist in bs_saferedit table, skipping modify field patch.
Creating bs_readers table ...done.
...have readers_ts field in bs_readers table.
...site_stats is populated...done.
Checking existence of old default messages...done.
Populating rev_len column
...doing rev_id from 1 to 200
Populating ar_len column
...archive table seems to be empty.
rev_len and ar_len population complete [0 revision rows, 0 archive rows].
Populating rev_shal column
...doing rev_id from 1 to 200
Populating ar_shal column
...archive table seems to be empty.
Populating ar_shal column legacy rows
rev_shal and ar_shal population complete [0 revision rows, 0 archive rows].
Populating img_shal field

Done 0 files in 0.0 seconds
Fixing protocol-relative entries in the externallinks table...
Done, 0 rows updated.
Populating fa_shal field from fa_storage_key

Done 0 files in 0.0 seconds
Updating *_from namespace fields in links tables.
...doing page_id from 1 to 200
Purging caches...done.

Done in 1.6 s.
root@bluespice:/var/www/bluespice#
```

Troubleshooting

If there is a problem with the PDF export in BlueSpice, first check the [file system permissions](#).

Download Web services

If the required war-file is missing in your installation package, you can download it here: [Webservices](#).

Webservice: VisualDiff

A [quality version](#) of this page, [approved](#) on *20 September 2019*, was based off this revision.

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This document describes the installation of VisualDiff from BlueSpice. **VisualDiff is a exclusive component of BlueSpice pro!** Please note that the [Apache Tomcat server](#) must be installed and configured on the BlueSpice server.

Tips for this Document

- Please, read this manual completely and work through the single installation steps one after another.
- For editing the configuration files with a text editor, the files must be saved in UTF-8 coding without BOM (Byte Order Mark).
- The placeholder `<installpath-bluespice>` stands for the path to your BlueSpice installation, e.g. `C:\inetpub\wwwroot\bluespice` (Windows) or `/var/www/bluespice` (Linux).
- The placeholder `<tomcat-webapps>` stands for the path to the Webapps directory of your Tomcat server, e.g. `C:\Program Files\Apache Software Foundation\Tomcat 8.5\webapps` (Windows) or `/var/lib/tomcat8/webapps` (Linux).

Copy of BShtmlDiff

Move the file "BShtmlDiff.war" from the directory `<installpath-bluespice>/extensions/BlueSpiceVisualDiff/VisualDiff/webservices` to `<tomcat-webapps>`

Restart Tomcat

Restart the Tomcat Webserver.

This completes the installation of VisualDiff.

Troubleshooting

If there is a problem with VisualDiff in BlueSpice, first check the [file system permissions](#).