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Note: For general questions regarding the installation, maintenance, and usage of BlueSpice free, go to our SourceForge help forum.

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We are happy that you decided to install the latest version of BlueSpice 4.

Please follow these steps:
- Check the system requirements
- Prepare the server environment
- Install the BlueSpice application
- Optimize the configuration

Check the system requirements

System requirements

Prepare the server environment

Linux server environment
Windows server environment

Install the BlueSpice application

Please select which installation type you need:
- Full BlueSpice installation
- Extended Functions: VisualEditor, ExtendedSearch
- BlueSpice WikiFarm installation
- Docker image

Upgrade and patch updates

Patch update from BlueSpice 4.1.x to a higher version 4.x
Upgrade from BlueSpice free 3.2.x to BlueSpice pro 4.1.x
Upgrade from BlueSpice free 4.1.x to pro 4.1.x

Migration from MediaWiki to BlueSpice

Migration from MediaWiki to BlueSpice

Optimize the configuration

If you don't need to set up a server environment "from scratch", you can directly refer to the setup instructions for individual system components. Just make sure that you really have everything configured as needed:

Webservices for Apache Tomcat
- PDF-Export

Additional settings and optimizations
- Caching
- Cronjobs
- Time Zone

Security settings
- File System Permissions
- Deactivating installcheck file
- Save Directories

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- Backup
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**Setup: Installation Guide**

*Note:* For general questions regarding the installation, maintenance, and usage of BlueSpice free, go to our [SourceForge help forum](https://sourceforge.net).  

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**Introduction**

We are happy that you decided to install the latest version of BlueSpice 4.

Please follow these steps:

- Check the system requirements
- Prepare the server environment
- Install the BlueSpice application
- Optimize the configuration

**Check the system requirements**

**System requirements**

**Prepare the server environment**

- Linux server environment
- Windows server environment

**Install the BlueSpice application**

Please select which installation type you need:

- Full BlueSpice installation
- Extended Functions: VisualEditor, ExtendedSearch
- BlueSpice WikiFarm installation
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**Upgrade and patch updates**

- Patch update from BlueSpice 4.1.x to a higher version 4.x
- Upgrade from BlueSpice free 3.2.x to BlueSpice pro 4.1.x
- Upgrade from Bluespice free 4.1.x to pro 4.1.x

**Migration from MediaWiki to BlueSpice**

**Optimize the configuration**

If you don't need to set up a server environment "from scratch", you can directly refer to the setup instructions for individual system components. Just make sure that you really have everything configured as needed:

**Webservices for Apache Tomcat**

- PDF-Export

**Additional settings and optimizations**

- Caching
- Cronjobs
- Time Zone

**Security settings**

- File System Permissions
- Deactivating installcheck file
- Save Directories

**Compendium**

- Backup
- Configuration Folder settings.d
- ExtendedSearch Configuration
- Folder structure under Windows
- Mathoid
- Performance Optimization
- Performance Optimization/ManualRecache
Backup of the database

To back up your database, use the native program "mysqldump" of MySQL/MariaDB: Open a console, switch to the directory `<installpath-bluespice>` and backup your database with the following command:

```
mysqldump -u <username> -p --lock-tables <datenbank> > database.sql
```

For `<username>`, use the administrative database user (usually "root"), and for `<datenbank>`, use the database of your MediaWiki/BlueSpice installation.

**Hinweis:** In Windows, make sure that your environment variables are set correctly, so that you can access the command "mysqldump".

Backup of the file system

Back up the complete directory `<installpath-bluespice>`, which now also includes the database image, to a different location on your server.

**For security reasons, immediately delete the file `<installpath-bluespice>/database.sql`, since it can be accessed from the browser.**

**Setup:Installation Guide/Advanced/Configuration Folder settings.d**

**Hinweis:** This document provides background information for advanced users. We recommend not to make any changes on BlueSpice, if you are not familiar with the following information.

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).

**Explanation For the Folder settings.d**

Starting with BlueSpice version 2.27.1, all default settings as well as the modules of BlueSpice are outsourced. All configurations can now be found in separate files in the /settings.d folder. The files in this folder integrate the standard MediaWiki extensions required for BlueSpice, perform recommended default configurations, and also integrate all BlueSpice-related extensions (free or pro).

The files in the /settings.d folder are automatically integrated in alphabetical order and are therefore prefixed with numbers.

If you want to add additional configurations yourself, you can save your own files here. For this, it is recommended to use the prefix 001-.
Additional configurations, which are not packed per default but can be used, can be found at auf github.com.

**Update\-safe changing of default configuration files**

If you want to change the files delivered by default in the settings.d folder, we strongly recommend that you choose the following method so as not to lose this configuration after an update:

Create a copy of the respective configuration file with the extension *.local.php* - e.g. *020-VisualEditor.local.php*

Only edit this file

Files with this file extension are generally preferred in the loading process.

**ExtendedSearch configuration**

If the *ElasticSearch service is up and running*, you can enable BlueSpice Extended Search.

Go to your BlueSpice install path. For example:

```bash
cd /var/www/bluespice
```

Go to the folder *settings.d*:

```bash
cd settings.d
```

Create a file in this folder and name it *020-BlueSpiceExtendedSearch.local.php*.

Put the following content in the newly created file.

```php
<?php
wfLoadExtension('BlueSpiceExtendedSearch');
$GLOBALS['wgSearchType'] = 'BS\ExtendedSearch\MediaWiki\Backend\BlueSpiceSearch';
```

Go to your BlueSpice install path again. For example:

```bash
cd /var/www/bluespice
```

Run the following scripts to build the search index.

```bash
php extensions/BlueSpiceExtendedSearch/maintenance/initBackends.php --quick
php extensions/BlueSpiceExtendedSearch/maintenance/rebuildIndex.php --quick
php maintenance/runJobs.php
```

Done! The extended search functionality is now active.

**Folder structure under Windows**

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Preface

Microsoft Windows distributes program installations and configurations, the Webroot under IIS etc. to various folders in the file system. Since BlueSpice is a web application based on PHP, it is not always easy to use the Windows default system paths in the application.

For this reason, we recommend creating your own folder structure for BlueSpice, all related data and additional program installations.

In the following we describe a proven folder structure. This is recommended by us.

Folder structure

In the following, "\bluespice\" is defined as the base directory for the installation in the root directory of the drive (e.g. C:\bluespice or D:\bluespice).

The folder structure is based on Unix operating systems:

```
bluespice/
│   -- backup/           # for backups
│   -- bin/              # for additional programs and own scripts
│   -- etc/              # for configuration files
│   -- opt/
│       -- bluespice/    # BlueSpice cache
│           -- cache/    # BlueSpice cache
│           -- images/   # File uploads
│           -- widgets/  # Rendered widgets
│   -- tmp/              # Temporary files
│   -- var/
│       -- log/           # LOG files of the web server
│       -- www/           # Actual BlueSpice application
```

Folder names for program installations

When installing programs in \bluespice\, please make sure to install these programs in subfolders that do not contain special characters and/or spaces.

Setup:Installation Guide/Advanced/Mathoid

Mathoid is a nodjs service which takes various forms of math input and converts it to MathML + SVG or PNG output.


If mathematical formulas are not rendered in your wiki, please check that `extensions/Math`/webservices/mathoid.tar.gz is deployed in the correct folder:

Linux: /opt/mathoid
Windows: C:\BlueSpice\bin\mathoid

Setup:Installation Guide/Advanced/Performance Optimization

Setup:Installation Guide/Advanced/Performance Optimization/ManualRecache
Setup:Installation Guide/Advanced/Performance Optimization/MySQL
Setup:Installation Guide/Advanced/Performance Optimization/PHP

Performance Optimization: ManualRecache of LanguageCache

To prevent Rebuilding LocalizationCache with every page call, apply the following configuration:
In the `settings.d` folder of your codebase, create the file `006-ManualRecache.php` with the following contents:

```php
<?php
$wgLocalisationCacheConf = [
'class' => LocalisationCache::class,
'store' => 'array',
'storeClass' => false,
'storeDirectory' => $wgCacheDirectory,
'manualRecache' => true,
];
```

Then delete all existing files in the cache folder of your codebase. Then manually re-create the LocalizationCache by entering the following on your console:

```
php /pfad/zur/installation/maintenance/rebuildLocalisationCache.php --force
```

Finally, make sure that this is done regularly in the background via cronjob ("Task Scheduler" under Windows). We recommend this twice a day, for example at 6am and 6pm.

**Performance Optimization: MySQL (MariaDB)**

Match MySQL or MariaDB directly to your memory and CPU cores. To do this, apply the following configuration in your my.ini:

```ini
[mysqld]
; with 16GB RAM
innodb_buffer_pool_size=4096M
tmp-table-size=1024M
max-heap-table-size=1024M
query_cache_size=1024M
; with 12 CPU cores
innodb-buffer-pool-instances=12
max_connections=12000
; Only use "127.0.0.1", not "localhost" when accessing MySQL
; Remember to also make these changes in the $wgDBserver variable in LocalSettings.php.
skip-name-resolve
```

**Performance Optimization: PHP**

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**opcache**

Enable the Zend extension opcache in PHP. In the php.ini, we recommend the following configuration:

```
opalche.enable=1
opalche.memory_consumption=512
opalche.max_accelerated_files=100000
opalche.validate_timestamps=1
opalche.revalidate_freq=2
opalche.optimization_level=0x7FFF9FFF
```

In addition, you should include the BlueSpice configuration files (`extensions /BlueSpiceFoundation/config/*`) in the Opcache blacklist (`opalche.blacklist_filename`). You can find more information in the [official PHP documentation](https://www.php.net/manual/en/book.opcache.php) for configuration.php.

---

**zlib**

Activate the extension zlib. In the php.ini we recommend the following configuration:

```
zlib.output_compression = On
zlib.output_compression_level = 9
```


---

**VisualEditor configuration**

---

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Server settings

Before you can use VisualEditor in BlueSpice, you have to activate it in your installation:
In the BlueSpice installation directory, locate the following files inside the folder
```
/var/www/settings.d/
```

**020-VisualEditor.php:**

```php
<?php
return;
//Config description can
wfLoadExtension( 'Visual
```

**020-BlueSpiceVisualEditorConnector.php:**

```php
<?php
return;
wfLoadExtension( "BlueSpiceVisualEditorConnector" );
$GLOBALS['bsgVisualEditorConnectorUploadDialogType'] = 'simple';

$GLOBALS['wqUploadDialog']['fields']['categories'] = true;
$GLOBALS['wqUploadDialog']['format']['filepage'] = '$DESCRIPTION SCATEGORIES';
```

Remove the line containing the „return;“ command in both files and save them.
Restart your web server (recommended).

Checking the Configuration manager

In case the VisualEditor is still not appearing, check if VisualEditor is shown as activated in the
configuration manager of your wiki:

Go to *Global actions > Config manager*

Make sure the checkbox "Enable VisualEditor for BlueSpice extensions" is activated:

![Configuration manager](image)

By default, VisualEditor is only activated in the main (Pages) and the User namespaces.

Activating VisualEditor for a namespace

Go to *Global actions > Namespace manager* In the column "VisualEditor", you can see which namespaces
have VisualEditor activated. They have a green check mark.

Click the wrench icon in the "Actions" column. The wrench appears, when you hover over the row of the
namespace:

![Namespace manager](image)

Activate the checkbox for VisualEditor in the dialog window and click "Done":

![Namespace manager](image)

Refresh the Namespace manager page (F5) to confirm the change.
VisualEditor should now be working correctly in all namespaces that actively use it.

Customizing the link to the help pages

By default, the help link for VisualEditor links to the help page for VisualEditor on the BlueSpice
helpdesk.
The link can be changed to go to a custom URL:
To configure the url, add:

```php
$GLOBALS['bsgVisualEditorConnectorHelpUrl'] = 'https://your_url';
```

to 'LocalSettings.php' or the appropriate config file.

## Windows Folder Structure

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**Introduction**

Microsoft Windows distributes program installations and configurations, the Webroot under IIS etc. to various folders in the file system. Since BlueSpice is a web application based on PHP, it is not always easy to use the Windows default system paths in the application. For this reason, we recommend creating a separate folder structure for BlueSpice, all related data and additional program installations. In the following we describe a proven folder structure that is also recommended by us.

**Folder structure**

In the following, "\bluespice\" is specified as the base directory for the installation in the root directory of the drive (e.g. C:\bluespice or D:\bluespice). The folder structure based on Unix operating systems is:

```
bluespice/
  └─ backup/           # für Backups
  └─ bin/              # für Zusätzliche Programme sowie eigene Scripte
  └─ etc/              # für Konfigurationsdateien
  └─ opt/              # für Zusätzliche Programme sowie eigene Scripte
      └─ bluespice/      # BlueSpice-eigener Cache
          └─ cache/       # BlueSpice-eigener Cache
          └─ images/      # Dateif-Uploads
          └─ widgets/     # Gerenderte Widgets
  └─ tmp/              # Temporäre Dateien
  └─ var/              # Temporäre Dateien
      └─ log/         # LOG-Dateien des Webservers
      └─ www/         # Die eigentliche BlueSpice-Applikation
```

**Folder names for program installations**

When installing programs in \bluespice\bin, please always ensure that these programs are installed in subfolders that do not contain any special characters and/or spaces.

**Installing BlueSpice free with Docker**

The easiest way to run BlueSpice free is to install it with an all-in-one Docker image. All required services are preconfigured.

You can find all necessary information directly on Docker Hub.

**How to use the Docker Hub image**

**Basic usage**

Example for quick start. Blue Spice will be accessible only in localhost.

```
docker run -d -p 80:80 bluespice/bluespice-free
```

**Keep your data outside of the docker**

```
docker run -d -p 80:80 -v {/my/data/folder}:data bluespice/bluespice-free
```

**Setting BlueSpice language and URL**

```
docker run -d -p 80:80 -v {/my/data/folder}:data -e "bs_lang=en" -e "bs_url=http://www .domain.com" bluespice/bluespice-free
```
Activating SSL

Using SSL inside the Blue Spicce docker image, the `data` directory should be outside of the docker. Create a folder named `cert` inside your data folder. Inside this folder, certificates must be named like:

- `ssl.cert` (SSL certificate, mandatory)
- `ssl.key` (Private key of `ssl.cert`, mandatory)
- `ssl.ca` (3rd party CA certs for `ssl.cert`, optional)

If everything is ready for the first run, just run the following command:

```
```

*Note: Port 443 includes the command and also $bs_url schema changed to https*

Login to BlueSpice

username: WikiSysop
password: PleaseChangeMe

Which services are running?

- Apache
- PHP-FPM
- Jetty9
- Elasticsearch
- MySQL/MariaDB
- Parsoid
- crond
- memcached

Setup: Installation Guide/Installation BlueSpice WikiFarm

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An existing BlueSpice pro installation can easily be extended with BlueSpiceWikiFarm. The existing installation assumes the role of the main wiki (=farm management). The contents remain there and can be maintained as usually.

**Note:** WikiFarm is not a standard feature of BlueSpice pro and needs to be acquired separately.

### PHP prerequisites
Please ensure that the PHP extension ZIP is archived, which is required for BlueSpiceWikiFarm.

### Ensuring the correct path in the file system
Important for the operation of BlueSpiceWikiFarm is that BlueSpice is located in the directory `/w` of the DocumentRoot of your web server or VirtualHost.

If this is not the case, you have to move the entire codebase there.

After that, the variable `$wgScriptPath` in the `LocalSettings.php` contains the path `/w`.

```php
$wgScriptPath = "/w";
```

### Creating the necessary folders for BlueSpiceWikiFarm
BlueSpiceWikiFarm needs two additional folders in the folder `/w` at the same level as the `LocalSettings.php`. You have to create these two folders:

- `_sf_instances` - all data and configurations for the respective instances are stored here
- `_sf_archive` - deleted farm instances including your database dump are stored here as ZIP archive

Make sure that these folders are writable by the web server. See also our ([notes in the helpdesk](#)) for this purpose.

### Creating the `LocalSettingsAppend.php`
Including the extension "BlueSpiceWikiFarm" first requires an additional configuration file with the name `LocalSettingsAppend.php`. Create this file on the same level as the `LocalSettings.php` and add the following content:

```php
<?php
require_once "$IP/LocalSettings.BlueSpice.php";

== Including the extension "BlueSpiceWikiFarm" ==
In the `LocalSettings.php` replace the line

```php
require_once "$IP/LocalSettings.BlueSpice.php";
```

with

```php
require_once "$IP/extensions/BlueSpiceWikiFarm/BlueSpiceWikiFarm.php";
```

### Configuring the web server
In the folder `extensions/BlueSpiceWikiFarm/SimpleFarmer/doc` you will find example files for RewriteRules, which are necessary for BlueSpiceWikiFarm:

- `htaccess.template` - RewriteRules for Apache
- `web.config.template` - RewriteRules for IIS

Configure these RewriteRules for the DocumentRoot level of your Web server or VirtualHost.
Completion
The installation of BlueSpiceWikiFarm is now complete. From now on, you can reach the farm administration in the main wiki under the special page "Special:SimpleFarmer".

Setup:Installation Guide/Migration from MediaWiki to BlueSpice

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Before you start
It is important to check the compatibility of your current MediaWiki installation and the BlueSpice version to which you want to migrate:
BlueSpice Version 3.x is based on MediaWiki 1.31.x
BlueSpice version 4.x is based on MediaWiki 1.35.x

Backup
Create a full backup of your current installation. Commands may differ depending on your operating system.
Create a directory to store the backup:
```
mkdir -p /opt/mediawiki-migration-backup/{db,web}
```
Create the database dump:
```
mysqldump -u DB_USER_OR_ROOT -p MEDIAWIKI_DATABASE_NAME > /opt/mediawiki-migration-backup/db/database.sql
```
Copy everything in the web root to the backup folder:
```
cp -Rvf /PATH/TO/MEDIAWIKI/FOLDER/* /opt/mediawiki-migration-backup/web/
```
We will use this backup later for the migration process as well.

Preparing the migration
You can create a separate user account and database for BlueSpice. This step is optional but recommended. The following steps are based on such a separately created user and database.
If you choose not to create a separate user account and database, replace the following commands accordingly.
Create a MySQL/MariaDB user via MySQL CLI:
```
CREATE USER 'bluespice'@'localhost' IDENTIFIED BY 'PleaseChooseAComplexPassword';
```
Create a database for BlueSpice via MySQL CLI:
```
CREATE DATABASE bluespice;
```
Grant the required privileges for the bluespice user to the bluespice database via MySQL CLI:
```
GRANT ALL PRIVILEGES ON bluespice.* TO 'bluespice'@'localhost';
FLUSH PRIVILEGES;
```
Now we have an empty SQL database and are ready to import.

Importing the data
Import the SQL dump from the backup you created earlier:
```
mysql -u bluespice -p bluespice < /opt/mediawiki-migration-backup/db/database.sql
```
After this command, enter the password you chose for the bluespice database user.
Next, clean up the old installation folder and create an empty one.
```
rm -Rf /PATH/TO/MEDIAWIKI/FOLDER/
```
and

```
mkdir -p /PATH/TO/MEDIAWIKI/FOLDER/
```

Next, extract the BlueSpice package and place it into the /PATH/TO/MEDIAWIKI/FOLDER/:

```
cd /PATH/TO/MEDIAWIKI/FOLDER/
```

Copy the `images` folder from the backup to the /PATH/TO/MEDIAWIKI/FOLDER/:

```
cp -Rf /opt/mediawiki-migration-backup/images .
```

Set the correct permissions based on your operating system to the folder /PATH/TO/MEDIAWIKI/FOLDER/.

**Configuration settings**

In /PATH/TO/MEDIAWIKI/FOLDER/, create a new file named `LocalSettings.php` and copy the following content into the file:

```
<?php
#
# This file was automatically generated by the MediaWiki 1.35.3 installer. If you make manual changes, please keep track in case you need to recreate them later.
#
# See includes/DefaultSettings.php for all configurable settings and their default values, but don't forget to make changes in _this_ file, not there.
#
# Further documentation for configuration settings may be found at: https://www.mediawiki.org/wiki/Manual:Configuration_settings

# Protect against web entry
if (!defined( 'MEDIAWIKI' )) {
    exit;
}

## Uncomment this to disable output compression
$wgDisableOutputCompression = true;

$wgSitename = "YOUR_WIKI_NAME";

## The URL base path to the directory containing the wiki; defaults for all runtime URL paths are based off of this.
## For more information on customizing the URLs (like /w/index.php/Page_title to /wiki/Page_title) please see: https://www.mediawiki.org/wiki/Manual:Short_URL
$wgScriptPath = "/w"; # <--- PLEASE CHECK YOUR DOCUMENTROOT

## The protocol and server name to use in fully-qualified URLs
$wgServer = "http(s)://your-domain.ltd";

## The URL path to static resources (images, scripts, etc.)
$wgResourceBasePath = $wgScriptPath;

## The URL paths to the logo. Make sure you change this from the default, or else you'll overwrite your logo when you upgrade!
$wgLogos = [ '1x' => "$wgResourceBasePath/resources/assets/wiki.png" ];

## UPO means: this is also a user preference option
$wgEnableEmail = true;
$wgEnableUserEmail = true; # UPO
$wgEmergencyContact = "nomail@localhost.localdomain";
$wgPasswordSender = "nomail@localhost.localdomain";
$wgEnotifWatchlist = false; # UPO
```

1. Set the correct permissions based on your operating system to the folder /PATH/TO/MEDIAWIKI/FOLDER/.
2. Extract the BlueSpice package and place it into the /PATH/TO/MEDIAWIKI/FOLDER/.
3. Copy the `images` folder from the backup to the /PATH/TO/MEDIAWIKI/FOLDER/.
4. Create a new file named `LocalSettings.php` and copy the following content into the file.
5. Protect against web entry by checking the `MEDIAWIKI` variable.
6. Uncomment the output compression line if needed.
7. Set the `wgSitename` to your wiki's name.
8. Set the URL base path to the directory containing the wiki.
9. Set the `wgServer` to your domain's protocol and server name.
10. Set the `wgResourceBasePath` to the script path.
11. Set the `wgLogos` to the local path of your logo.
12. Enable user preference options for email and notification.
13. Set the emergency contact and password sender.
14. Set the email notification options for watchlist and user talk.
This document was created with BlueSpice
1. Path to the GNU diff3 utility. Used for conflict resolution.
   `wgDiff3 = "/usr/bin/diff3";`

2. Default skin: you can change the default skin. Use the internal symbolic names, ie 'vector', 'monobook':
   `wgDefaultSkin = "bluespicediscovery";`

3. End of automatically generated settings.

This is the main settings file for all BlueSpice extensions and settings
It will include all files in "$IP/settings.d/" directory
require_once "$IP/LocalSettings.BlueSpice.php";

Edit this `LocalSettings.php` and set the correct values to fit your installation. This current `LocalSettings.php` might look like different from your MediaWiki installation, because BlueSpice comes with a separate folder for custom settings (`settings.d`).

**Migrating the system**

The system is ready to migrate.
Run the following script to start the migration:
```
php /PATH/TO/MEDIAWIKI/FOLDER/maintenance/update.php --quick
```

Now BlueSpice should be reachable.
Execute the following additional scripts:
```
php /PATH/TO/MEDIAWIKI/FOLDER/maintenance/rebuildall.php
#Finally for the search index (ElasticSearch 6.x and ingest-attachment plugins must be installed) php /PATH/TO/MEDIAWIKI/extensions/BlueSpiceExtendedSearch/maintenance/initBackends.php --quick
php /PATH/TO/MEDIAWIKI/FOLDER/extensions/BlueSpiceExtendedSearch/maintenance/rebuildIndex.php --quick
php /PATH/TO/MEDIAWIKI/FOLDER/maintenance/runJobs.php --memory-limit=max
```

Your migration is complete and your BlueSpice is ready to use!
You can use your old credentials to login.

**Questions?** Visit the BlueSpice help forum on sourceforge.net.

**Caching**

**Contents**

1. Tips for the Document ................................................................. 22
2. Linux vs. Windows ................................................................. 22
3. Indicate Cache-Directory ....................................................... 22
This document describes different caching options to enhance the performance of your BlueSpice.
This document describes different caching options to enhance the performance of your BlueSpice installation.

### Tips for the 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).

### Linux vs. Windows

Please note that with equal hardware conditions, BlueSpice empirically runs more performantly on Linux than on Windows servers.

### Indicate Cache-Directory

This forces BlueSpice to use the filesystem instead of the database for some internal caches. To do this, create the file `<installpath-bluespice>/settings.d/001-Directories.php` and add the following content:

```php
<?php
$wgCacheDirectory = "$IP/cache";
```

Save and close the file.

**Hinweis:** The directory "cache" in `<installpath-bluespice>` must be writable by the web server. For more information, read the file system permissions.

### Name Resolution of the Database

If this hasn't already been done while setting up MediaWiki, please make sure that the database server will be addressed via IP if it runs on the same server than BlueSpice. Especially Windows has problems with the resolution of "localhost".

To do this, open `<installpath-bluespice>/LocalSettings.php` and locate the variable `$wgDBServer`. The line should ideally be:

```php
$wgDBServer = "127.0.0.1";
```

### Activate Memcached

Create the file `<installpath-bluespice>/settings.d/001-Memcached.php` and add the following content:

```php
<?php
$wgMainCacheType = CACHE_MEMCACHED;
$wgSessionCacheType = CACHE_DB;
$wgMemCachedServers = [ "127.0.0.1:11211" ];
```

Save and close the file.

**Hinweis:** The prerequisite is an installed and configured memcached server on the BlueSpice server. Read the memcached article for more information.
Increase PHP Memory Limit
A higher memory limit of PHP results in a faster execution. This can be changed in php.ini.
Locate and adjust the following option:

```
memory_limit = 512M (means 512 MB - varies from the available memory)
```

After saving and closing php.ini, the web server must be restarted.

Activate Bytecode Cache in PHP
Since PHP 5.5 the bytecode cache "opcache" is included. This needs to be activated in the php.ini first. Check if the module is integrated there. This is done via the line:

```
zend_extension=opcache.dll (Windows)
zend_extension=opcache.so (Linux)
```

Hinweis: Please also note the specification of the distributor for activating PHP modules under Linux.

Please, do the following configuration of the opcache in php.ini. Normally, all options should already exist, but are commented out by semicolon (;) at the beginning of the line. Locate the respective option in php.ini, remove the semicolon at the beginning of the line and adjust the settings as follows:

```
opcache.enable=1
opcache.memory_consumption=512 (means 512 MB - varies from the available memory)
opcache.max_accelerated_files=5000
opcache.validate_timestamps=1
opcache.revalidate_freq=2
```

After saving and closing php.ini, the web server must be restarted.

Deactivate JobQueue
For this, read the paragraph "runjobs.php" in the "Cronjobs" article.

Cronjobs

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1 Tips for this Document ........................................................................................................ 24
2 runJobs.php ....................................................................................................................... 24
3 processBsEmailBatch.php ................................................................................................. 24
This document describes cronjobs and related configurations, which should be set for your BlueSpice (depending on the used version).

**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 regarding the documentation "Folder structure under 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).

**runJobs.php**

Time-consuming processes will be moved to a processing queue in the background of BlueSpice. With every page impression, a part of these will be processed. For the case that there are lots of processes in the queue and there are relatively little page impressions, the tasks will not be processed promptly.

For this reason, the queue should be processed regularly by cronjob.

Now create a cronjob (Windows: "Scheduled task") depending on your operating system. The command to execute is:

```
php <installpath-bluespice> /maintenance/runJobs.php (Linux)
php.exe <installpath-bluespice> \maintenance\runJobs.php (Windows)
```

**processBsEmailBatch.php**

For reports via email sent from MediaWiki, please create a cronjob and run it daily. The command for this is:

```
php <installpath-bluespice> /extensions/BlueSpiceEchoConnector/maintenance/processBsEmailBatch.php (Linux)
php.exe <installpath-bluespice> \extensions\BlueSpiceEchoConnector\maintenance\processBsEmailBatch.php (Windows)
```

**Hinweis:** It is recommended to specify the complete path to php.exe under Windows. For more information, see the environment variables document.

Execute the cronjob every **10 minutes**.

**Time Zone**

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1. Tips for this Document .......................................................... 26
Even if every user can change his time zone himself in the user settings, BlueSpice sets the default time zone "Europe/Berlin" when the user first logs in. This document describes how to change this if necessary.

**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: \inetpub\wwwroot\bluespice (Windows regarding the documentation "Folder structure under 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).

### Changing the Time Zone

Copy the file `<installpath-bluespice>/settings.d/001-DefaultSettings.php` to `<installpath-bluespice>/settings.d/001-DefaultSettings.local.php` and open it. In delivery stat, you can find these two lines there:

```php
$wgLocaltimezone = 'Europe/Berlin';
$wgDefaultUserOptions['timecorrection'] = 'ZoneInfo' . (date("I") ? 120 : 60) . "|Europe/Berlin";
```

Replace "Europe / Berlin" with your time zone. An overview of all possible time zones can be found in the official PHP documentation.

Save and close the file.

### Setup:Installation Guide/Patch Update

For large version jumps (e.g., BlueSpice 3.2.x to 4.2.x), a new installation is generally recommended.

For a patch update (for example, version 4.1.x to a higher version 4.1.x+) you can simply follow these steps:

**Create a backup:** Pull a dump of the database and save it together with the complete codebase to a backup location of your choice.

**Renew the codebase:** Overwrite the codebase of the current version with the new codebase of the higher version.

**Compare:** After the overwrite, please compare the following files and folder. Copy from your backup if necessary.

- If you have a custom skin, please check the `skins/` folder.
- `LocalSettings.php`

**Run the update:**

Open a console and go to the installation folder (on the LocalSettings.php level)

Then enter the following command: `php maintenance/update.php`

If you use Linux as the basis of your BlueSpice installation, please note that file system permissions may be lost when overwriting the codebase. More information can be found under `File System Permissions.`
Deactivating installcheck.php

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2 Deactivating installcheck.php .................................................. 28

Note: In a patch update, usually no database schemas have changed. It may not be necessary to run update.php.
As soon as the setup of BlueSpice is completed, you should prevent the execution of the installcheck.php while using the wiki productively. A short instruction can be found in this document.

**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).

**Deactivating installcheck.php**

Switch to the directory `<installpath-bluespice>` and open the `installcheck.php` file in a text editor.

```
Insert a new line after the first line and insert

die( 'Deactivated.' );
```

Save and exit the file. The installcheck.php is no longer accessible now.

If you need to restore this file at a later time, it is sufficient to temporarily disable inserted line by placing the `#` character at the beginning of the line.

**File System Permissions**

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<td>3  Assignment of Permissions with Windows</td>
<td>29</td>
</tr>
<tr>
<td>4  Assignment of Permissions with Linux</td>
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</tr>
</tbody>
</table>
For trouble-free usage of your BlueSpice installation, the web server requires write permissions to several folders of the file system. However, it is recommended to keep the rights for all other files and folders to a minimum. This document shows you the relevant folders and the correct permissions setting.

**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).

**Affected Folders**

The folders, which require write permissions, are:

- `<installpath-bluespice>/cache`
- `<installpath-bluespice>/images`
- `<installpath-bluespice>/extensions/BlueSpiceFoundation/config`
- `<installpath-bluespice>/extensions/BlueSpiceFoundation/data`
- `<installpath-bluespice>/extensions/Widgets/compiled_templates` (*only BlueSpice pro*)

**Assignment of Permissions with Windows**

Assign "change" rights for this folder for the local user "Everyone".
Assignment of Permissions with Linux

Here you can assign rights much more strictly, which is also recommended. Transfer the directory `<installpath-bluespice>` recursively to the user root (CHMOD for Files 644, CHMOD for Directories 755) and after this, transfer the mentioned directory recursively to the user and the group, under which the Apache Web Server runs (Debian/Ubuntu e.g. "www-data").

In the following, we provide a bash script, which works through this tasks for you with only one command.

To do so, create the file `/usr/local/bin/setWikiPerm` and copy the following code into this file:

```bash
#!/bin/bash
WWW_USER="www-data"
WWW_GROUP="www-data"
WWW_HOME=`eval echo ~$WWW_USER`
WWW_CFG=$WWW_HOME/.config

if [ $# -eq 0 ]; then
echo "You must enter the path of your MediaWiki installation."
exit
elif [ ! -d $1 ]; then
    echo "$1 does not exist or is no path."
    exit
```
if [ ! -f $1/LocalSettings.php ]; then
    echo "$1 contains no Localsettings.php"
    exit
fi

PATH=`echo "$1" | sed -e 's#/$##'`
/usr/bin/find $PATH -type d -exec /bin/chmod 755 {} \;
/usr/bin/find $PATH -type f -exec /bin/chmod 644 {} \;
/bin/chown -R root:root $PATH

pathes=(
    "$PATH/cache" \\
    "$PATH/images" \\
    "$PATH/_sf_archive" \\
    "$PATH/_sf_instances" \\
    "$PATH/extensions/BlueSpiceFoundation/data" \\
    "$PATH/extensions/BlueSpiceFoundation/config" \\
    "$PATH/extensions/Widgets/compiled_templates"
)
for i in "${pathes[@]}"; do
    if [ -d $i ]; then
        /bin/chown -R $WWW_USER:$WWW_GROUP $i
    fi
done
if [ ! -d $WWW_CFG ]; then
    /bin/mkdir $WWW_CFG
fi

/bin/chown -R $WWW_USER:$WWW_GROUP $WWW_CFG
/usr/bin/find $PATH/extensions -iname 'create_pygmentize_bundle' -exec /bin/chmod +x {} \;
/usr/bin/find $PATH/extensions -iname 'pygmentize' -exec /bin/chmod +x {} \;
/usr/bin/find $PATH/extensions -name 'lua' -type f -exec /bin/chmod 755 {} \;

If needed, replace the content of the variables

WWW_USER="www-data"
WWW_GROUP="www-data"

with the appropriate user and group of your distribution.

After this, assign CHMOD 755 to this file. Now you can run the script and let it do the complete
permission setting automatically with the following command:

setWikiPerm <installpath-bluespice>

Note: Note that when the update.php is executed on the console, the rights can be
partially discarded. For this reason, set the rights to "update.php" again.

Save Directories

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2 Explanation for Saving Directories ............................................. 32
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).

Explanation for Saving Directories

It is highly recommended, to lock several directories to save them from access from external browsers, so that calling up the directory or the content delivers the HTTP status code (Forbidden). To find out how this works with the webserver you are using, please read the documentation of your webserver software.

The following directories should be saved:
- `<bluespice-url>/cache`
- `<bluespice-url>/images`

Please keep in mind that you need to unblock the subfolder `<bluespice-url>/images/bluespice/flexiskin` afterwards, because this subfolder must be accessible.

- `<bluespice-url>/mw-config`

Setup:Installation Guide/System Preparation/Linux

Introduction
Apache and PHP
MariaDB
Jetty
Elasticsearch
Python
Memcached
Texvc (BlueSpice pro only)
PhantomJS (BlueSpice pro only)

Setup:Installation Guide/System Preparation/Windows

This part of the installation guide provides step-by-step instructions for the Windows system preparation. This is necessary if you want to install BlueSpice afterwards. Follow these chapters in the order listed. At the end of each chapter you will see a link to the next chapter.

Please also pay attention to the chapter "Introduction". It contains additional information about this manual.

Introduction
Setting the system rights of the temporary Windows folder
.NET Framework 3.5
IIS-Webserver
urlrewrite
Microsoft Visual C++ Redistributable
PHP Manager
PHP
MariaDB
OpenJDK
Apache Tomcat
Elasticsearch
Python
Webservice: PDF-Export

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Make sure that the is completely installed and configured on the BlueSpice Apache Tomcat server
1. 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 10.0\webapps (Apache Tomcat on Windows)
- /var/lib/jetty9/webapps (Jetty on Debian)

Or run the command `sudo mv /var/www/bluespice/w/extensions/BlueSpiceUEModulePDF/webservices/BShtml2PDF.war /var/lib/jetty9/webapps` in the terminal. (Linux)

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:

![BShtml2PDF Website](https://example.com/bshtml2pdf)

### Enable PDF Export in BlueSpice

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

Or open the 020-BlueSpiceUEModulePDF.php in the terminal using the command `sudo nano /var/www/bluespice/w/settings.d/020-BlueSpiceUEModulePDF.php`. (Linux)

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.

---

**Note:** Give the user "Everyone" full access to the Temp folder under C:\Widows.

## Installing BlueSpice 3 with installer

Open `localhost/w` in your Browser and follow the instructions.

For BlueSpice WikiFarm, move the .htaccess and web.config files to C:\bluespice\var.

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)

---

14.07.2022 This document was created with BlueSpice
Note: In Windows, make sure that the environment variables are set correctly to access the "php" command.

Note: 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.

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.

Installing BlueSpice 4.1.x
Introduction
BlueSpice 4 is installed as a complete package with MediaWiki 1.35 and BlueSpice 4. This installation guide gives you step-by-step instructions to install BlueSpice.

Important! If you do a fresh install of BlueSpice 4.1, it might be necessary to run update.php afterwards if you get an error.

Note: This document only describes the steps for installing the web application itself. For the installation of extended functions such as VisualEditor and Extendedsearch, please refer to the corresponding documentation.

We will not go into details about your operating system installation here, but assume that you have already configured your system and stored the installation package in a web root of your choice, where you can access it via your browser. You can find more details in our detailed installation guide.

Further help on optimizing the operating system can be found in our compendium.

Step-by-step installation

Note: If you also install the paid extension "BlueSpiceWikiFarm", make sure that the codebase is not located directly in the DocumentRoot of your web server or VirtualHost - it must be located in the /w subfolder!

First use your browser to call up the URL under which the web application can be reached. Then complete the following steps:

<table>
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<th>Step 1: Start the installation setup</th>
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<tbody>
<tr>
<td>First, open the URL of your web application in your browser. Then click on &quot;set up the wiki&quot; to start the installation. If you don't meet all necessary requirements for PHP yet, you won't be able to view this setup page yet. Please make the necessary corrections to your PHP installation first. Otherwise, you are now on the page shown in the screenshot (click on the thumbnail to see the full screenshot).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2: Select your language</th>
</tr>
</thead>
</table>
You are now in the language selection. "Your language" defines the language that guides you through the installer, "Wiki language" the later language settings of your wiki.

**Step 3: MediaWiki installation check**
This step takes you to the MediaWiki installation check. Please read this check carefully, as possible hints may not block the installation itself, but may lead to restrictions of the wiki functionality in practice. Make the necessary corrections to your system and reload the page in your browser before proceeding with the setup.

**Step 4: Establish the database connection**
In this step, you configure the database connection. Here you can either specify the root user of your MySQL server and in the following step have the installer create an additional user who only has access to the BlueSpice database. The database will also be created automatically if it does not yet exist. Or, alternatively, you can create a user and a database in advance and directly enter this information here. You can find information on the manual creation of users and databases in the [official Mediawiki documentation](http://www.mediawiki.org/wiki/Manual:Database_setup).

**Step 5: Create the BlueSpice database user**
Depending on the procedure you followed in the previous step, you can now define an exclusive user for your BlueSpice database. If you have already created the user explicitly for the database in advance, leave the check mark at "Use the same database account as during the installation process".

**Step 6: Create your wiki name and administrator account**
Enter the name for your wiki. This name is displayed in the title bar of your browser and in various other places such as in notification mails. Pay extra attention to the correct
spelling, because this name can afterwards only be changed with a certain effort and certain risks. Next, enter the username, password and e-mail address of the first wiki administrator. The administrator account is then created by the wiki during setup.

**Step 7: Options**
In this step, you specify the e-mail address for notification e-mails.

**Step 8: Installation**
This step announces the installation of the wiki. If you don't need to make any changes to the previous steps, click "Next" to start the installation process.

**Step 9: Installation status**
After the successful installation of BlueSpice, you see a confirmation page that you confirm with "Next".

**Step 10: Download LocalSettings.php**
In the last step of the installation, you will be asked to download the configuration file "LocalSettings.php" of your installation. Download it and place it in the root directory of your BlueSpice codebase.

**Step 11: Rename the template folders**
Open the folder `..\extensions\BluesSpiceFoundation` and rename the subfolder `config.template` to `config` and create the new folder `data`. These folders should have read and write access, see [File System Permissions](#). Run the script `..\maintenance\update.php` from the console.
If you receive the error message "Fatal exception of type MWException", open the terminal and run the command "sudo nautilus". After that, give the folder /var where bluespice was installed all rights.

**Step 12: Load the BlueSpice welcome page**

If you now access the URL you specified for BlueSpice, you now see the BlueSpice welcome page. You can start using BlueSpice immediately.

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**BlueSpice WikiFarm**

If you are installing BlueSpice WikiFarm follow these instructions

Now open a command line and change to the folder `<installpath-bluespice>`. Run the following command:

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

**Next steps**

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**Note:** If the page is not loading, give the group "users" change-permissions for the folder `C:\Windows\Temp`.

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**Important!** As next step, you can configure VisualEditor and Extendedsearch.

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**System Requirements**

For a trouble-free installation of the current version BlueSpice 3.4, we recommend the following system requirements. The application BlueSpice is tested by Hallo Welt! for Windows and Linux.

**Browser**

- Microsoft Edge
- Google Chrome
- Firefox

**Server Environment**

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**Warning!** PHP version 8 is currently not supported!

Operating system: Microsoft Windows Server >= 2016 or Linux (common distributions)
Webserver: Apache 2.4.x, IIS >= 10 or nginx 1.x *(nginx not possible in WikiFarm)*

PHP 7.4.x starting at 7.4.3

MySQL: >= 5.6 oder MariaDB >= 10.3

Main memory: 16 GB (minimal 8 GB)

Available hard drive space: > 20GB (depends on the planned storage of data)

CPU: 8 (minimal 4) cores

Apache Tomcat >= 9 oder jetty >= 9 (for PDF export and LaTexRenderer)

ElasticSearch 6.8 with plugin “ingest-attachment”

OpenJDK >= 10

NodeJS 16