PHPBU Manual

Edition for PHPBU 6.0.

Sebastian Feldmann

PHPBU Manual: Edition for PHPBU 6.0.

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Chapter 1. Installing PHPBU

Requirements

PHPBU 6.0 requires PHP 7.2, but using the latest version of PHP is highly recommended.

PHPBU requires the dom [http://php.net/manual/en/dom.setup.php] and json [http://php.net/manual/en/json.installation.php] extensions, which are normally enabled by default.

The different backup sources may need their respective executable binary e.g. `mysqldump`.

PHP Archive (PHAR)

The easiest way to install PHPBU is to download a PHP Archive (PHAR) [http://php.net/phar] that has all the required dependencies of PHPBU bundled in a single file.

If the Suhosin [http://suhosin.org/] extension is enabled, you need to allow execution of PHARs in your `php.ini`:

```
suhosin.executor.include.whitelist = phar
```

To globally install the PHAR:

```
$ wget http://phar.phpbu.de/phpbu.phar
$ chmod +x phpbu.phar
$ sudo mv phpbu.phar /usr/local/bin/phpbu
$ phpbu --version
phpbu x.y.z by Sebastian Feldmann and Contributors.
```

You may also use the downloaded PHAR file directly:

```
$ wget https://phar.phpbu.de/phpbu.phar
$ php phpbu.phar --version
phpbu x.y.z by Sebastian Feldmann and Contributors.
```

Composer

If you are using Composer [https://getcomposer.org/] to manage your dependencies, simply add `phpbu/phpbu` to your `composer.json` file.

```
{
    "require": {
        "phpbu/phpbu": "^6.0"
    }
}
```

For a system-wide installation via Composer, just run:

```
composer global require phpbu/phpbu
```

Make sure you have `~/.composer/vendor/bin/` in your path.

Framework integrations

The following framework integrations are available:

`phpbu-laravel`	Integrates phpbu with the laravel artisan command line tool. See the section called “Laravel” for details.

Chapter 2. Configuration

To use PHPBU and create your backups you first have to create a configuration file.

The configuration of PHPBU is done with a simple XML file. You can validate your config files with the respective PHPBU schema definition found at schema.phpbu.de [http://schema.phpbu.de].

XML-Configuration

You should name your configuration file `phpbu.xml` or `phpbu.xml.dist` so you don't have to specify the path with the `--configuration` option.

The following skeleton is a good point to start and get into detail from here.

Example 2.1. XML-Configuration

```
<?xml version="1.0" encoding="UTF-8"?>
<phpbu xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:noNamespaceSchemaLocation="http://schema.phpbu.de/6.0/phpbu.xsd">
  <backups>
    <backup name="MyDatabase">
      <!-- backup source -->
      <source type="mysqldump">
        <option name="databases" value="mydbname"/>
        <option name="user" value="user.name"/>
        <option name="password" value="topsecret"/>
      </source>
      <!-- where should the backup be stored -->
      <target dirname="backup/mysql"
              filename="mysqldump-%Y%m%d-%H%i.sql"
              compress="bzip2"/>
      <!-- check the created backup -->
      <check type="SizeMin" value="10M"/>
      <!-- cleanup the backup location
           as soon as all created backups exceed 500MB
           remove oldest backups -->
      <cleanup type="Capacity">
        <option name="size" value="500M"/>
      </cleanup>
    </backup>
  </backups>
</phpbu>
```

List of tags

<phpbu>

The XML root element with at least xmlns:xsi and xsi:noNamespaceSchemaLocation.

Table 2.1. <phpbu> attributes

Name	Values	Required	Default	Description
bootstrap	filename	no	null	Include a PHP file to extend PHPBU
verbose	true | false	no	false	Controls the output verbosity

Name	Values	Required	Default	Description
debug	true | false	no	false	Controls the debug output

<backup>

Configures a backup process. You can have as many of these as you need.

Table 2.2. <backup> attributes

Name	Values	Required	Default	Description
name	string	yes	null	A custom name for your backup used in the PHP-BU output.
stopOnError	true | false	no	false	Indicates if the execution of PHP-BU should be stopped if this backup fails.

<source>

Defines the data that is backed up.

Table 2.3. <source> attributes

Name	Values	Required	Default	Description
type	string	yes	-	Type of backup, Chapter 5, *Backup Sources* has a list of all supported source types.

<target>

Defines where the backup is stored.

Table 2.4. <target> attributes

Name	Values	Required	Default	Description
dirname	string	yes	-	Path to the directory where the backup is stored, absolute or relative to the config file.
filename	string	yes	-	Filename of the stored backup.
compress	string	no	null	Type of compressor to use to compress the backup.

<check>

Specifies what kind of tests should be performed to validate the backup.

Table 2.5. <check> attributes

Name	Values	Required	Default	Description
type	string	yes	-	Type of check, Chapter 6, *Backup Validation* has a list of all supported check types.
value	string	yes	-	Value the backup is getting checked against.

<crypt>

Specifies what type of encryption should be used to encrypt the backup.

Table 2.6. <crypt> attributes

Name	Values	Required	Default	Description
type	string	yes	-	Type of encryption, Chapter 7, *Encryption* has a list of all supported crypt types.
skipOnFailure	true | false	no	false	You can still execute the encryption, even if failure(s) occurred.

<sync>

Copy the created backup to another location.

Table 2.7. <sync> attributes

Name	Values	Required	Default	Description
type	string	yes	-	Type of sync, Chapter 8, *Sync Backups* has a list of all supported sync types.
skipOnFailure	true | false	no	false	You can still execute the sync, even if failure(s) occurred.

<cleanup>

Tells phpbu which files to delete after a successful backup.

Table 2.8. <cleanup> attributes

Name	Values	Required	Default	Description
type	string	yes	-	Type of cleanup, Chapter 9,

Name	Values	Required	Default	Description
				Cleanup backups has a list of all supported cleanup types.
skipOnFailure	true | false	no	-	You can still execute the cleanup, even if failure(s) occurred.

<option>

A simple key value tag to configure <source>, <crypt>, <sync> and <cleanup>.

Table 2.9. <option> attributes

Name	Values	Required	Default	Description
name	string	yes	-	Option key.
value	string	yes	-	Option value.

JSON-Configuration

This is roughly the same skeleton as shown above at the XML-Section.

Example 2.2. JSON-Configuration

```
{
  "verbose": true,
  "logging": [
    {
      "type": "json",
      "target": "backup/json.log"
    }
  ],
  "backups": [
    {
      "name": "MyDatabase",
      "source": {
        "type": "mysqldump",
        "options": {
          "databases": "mydbname",
          "user": "user.name",
          "password": "topsecret"
        }
      },
      "target": {
        "dirname": "backup",
        "filename": "mysql-%Y%m%d-%H%i.sql",
        "compress": "bzip2"
      },
      "checks": [
        {
          "type": "sizemin",
          "value": "10M"
        }
      ],
      "syncs": [
        {
```

```
          "type": "sftp",
          "options": {
            "host": "backup.example.com",
            "user": "user.name",
            "password": "topsecret",
            "path": "backup/someName"
          }
        }
      ],
      "cleanup": {
        "type": "Capacity",
        "options": {
          "size": "200M"
        }
      }
    }
  ]
}
```

Adapters

Adapters are used to include configuration settings from other configuration sources.

So with adapters you don't have to put your passwords into your PHPBU configuration file. Instead you can use environment variables or .env configuration files.

And this is how it works: You add an adapter to your phpbu configuration like shown in the examples below. You have to choose a `type` and a `name`. The name is completely up to you, but you are not allowed to use colons. With this done you can now reference your configured adapter for any option value in your PHPBU configuration like this.

`:adapter:my-chosen-adapter-name:path.to.value:`

The keyword `adapter` tells PHPBU that this option value should be received from an adapter, followed by a `colon`, followed by your chosen `adapter name` so PHPBU knows which adapter to use, followed by a `colon`, followed by the identifier for your value. The identifier could be the name of a environment variable or a "path" through an configuration array like this "db.mysql.username" completely depending on the adapter implementation.

You can use adapter values for whole configuration values, in that case you can skip the leading and trailing colons. If you want to use multiple adapter values in a single configuration value you have to use the leading and trailing colons.

Example 2.3. Adapter examples

```
<option name="singleValue" value="adapter:myAdp:foo"/>
<option name="multipleValues" value="/foo/:adapter:myAdp:dir:/bar/:adapter:myAdp:file:.z
```

```
{"singleValue": "adapter:myAdp:foo"}
{"multipleValues": "/foo/:adapter:myAdp:dir:/bar/:adapter:myAdp:file:.zip"}
```

For a list of available adapters and detailed documentation check out the adapter section.

Example 2.4. XML-Configuration

```
<?xml version="1.0" encoding="UTF-8"?>
<phpbu xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:noNamespaceSchemaLocation="http://schema.phpbu.de/6.0/phpbu.xsd">
  <adapters>
    <adapter type="dotenv" name="environment">
```

```
      <option name="file" value=".env" />
    </adapter>
  <adapters>
  <backups>
    <backup>
      <!-- backup source -->
      <source type="mysqldump">
        <option name="databases" value="mydbname"/>
        <option name="user" value="adapter:environment:DB_USER"/>
        <option name="password" value="adapter:environment:DB_PASSWORD"/>
      </source>
      <!-- where should the backup be stored -->
      <target dirname="backup/mysql"
              filename="mysqldump-%Y%m%d-%H%i.sql"/>
    </backup>
  </backups>
</phpbu>
```

Example 2.5. JSON-Configuration

```
{
  "verbose": true,
  "adapters": [
    {
      "type": "dotenv",
      "name": "environment",
      "options": {
        "file": ".env"
      }
    }
  ],
  "backups": [
    {
      "source": {
        "type": "mysqldump",
        "options": {
          "databases": "mydbname",
          "user": "adapter:environment:DB_USER",
          "password": "adapter:environment:DB_PASSWORD"
        }
      },
      "target": {
        "dirname": "backup",
        "filename": "mysql-%Y%m%d-%H%i.sql"
      }
    }
  ]
}
```

Schedule backups

Scheduling your backups is not part of PHPBU. Nevertheless here is an example how to do it with Cron [https://de.wikipedia.org/wiki/Cron]. Adding one of the following lines to your crontab will execute your backup every morning at 3:10 AM.

Example 2.6. Crontab example

```
# +------------------------- min (0 - 59)
# |    +-------------------- hour (0 - 23)
# |    |    +--------------- day of month (1 - 31)
# |    |    |    +---------- month (1 - 12)
```

```
# |    |    |    |    +----- day of week (0 - 7) (Sunday=0 or 7)
# |    |    |    |    |
# *    *    *    *    *

# this requires phpbu to be in the cron users path
10     3    *    *    * phpbu --configuration=/var/www/my-backup/phpbu.xml

# alternatively you can specify the full path
#10     3    *    *    * /home/user/bin/phpbu.phar --configuration=/var/www/my-backup/ph

# some systems require the full path to the PHP CLI binary
#10     3    *    *    * /etc/php/sbin/php /home/user/bin/phpbu.phar --configuration=/va
```

Chapter 3. Configuration Adapters

For a basic understanding why adapters are useful, have a look at the configuration documentation.

You can build your own configuration adapter. Want to know how? Have a look at the extending PHPBU section

Environment adapter "env"

Adapter to use environment variables for option values.

Example 3.1. Adapter definition

```
<adapter type="env" name="myName"></adapter>
```

Example 3.2. Adapter reference

```
<option name="password" value="adapter:myName:SOME_ENV_VAR" />
```

Dotenv adapter "dotenv"

Adapter to use .env files to load environment variables.

Table 3.1. Options

Name	Required	Default	Description	
file	no	.env	Path to the .env file	

Example 3.3. Adapter definition

```
<adapter type="dotenv" name="myName">
    <option name="file" value="my-dot-env-dir/.env" />
  </adapter>
```

Example 3.4. Adapter reference

```
<option name="password" value="adapter:myName:SOME_DOTENV_VAR" />
```

PHP array adapter

Adapter to use PHP array config files.

Example 3.5. Example PHP array config file

```
<?php return ['foo' => ['bar' => 'baz']];
```

Table 3.2. Options

Name	Required	Default	Description	
file	yes	-	Path to the php config file	

Example 3.6. Adapter definition

```
<adapter type="array" name="myName">
    <option name="file" value="my-config-dir/config.php" />
  </adapter>
```

Example 3.7. Adapter reference

```
<option name="password" value="adapter:myName:foo.bar" />
```

PHP constant adapter

Adapter to use PHP constant config files.

Example 3.8. Example PHP constant config file

```
<?php define('DB_NAME', 'foo');
```

Table 3.3. Options

Name	Required	Default	Description	
file	yes	-	Path to the php config file	

Example 3.9. Adapter definition

```
<adapter type="constant" name="myName">
    <option name="file" value="my-config-dir/config.php" />
  </adapter>
```

Example 3.10. Adapter reference

```
<option name="password" value="adapter:myName:DB_NAME" />
```

Wordpress config adapter

Adapter to use wordpress config files.

Table 3.4. Options

Name	Required	Default	Description	
file	yes	-	Path to the wordpress config file	

Example 3.11. Adapter definition

```
<adapter type="wordpress" name="wp">
    <option name="file" value="wordpress/wp-config.php" />
  </adapter>
```

Example 3.12. Adapter reference

```
<option name="password" value="adapter:wp:DB_NAME" />
```

Chapter 4. The Command-Line-Runner

If you have a configuration file named `phpbu.xml` in your current working directory you can execute PHPBU like this

```
~$ phpbu
phpbu 6.0.0 by Sebastian Feldmann and Contributors.

OK (1 backup, 0 checks, 0 encryption, 0 syncs, 0 cleanups)
```

If you want to use a custom name for your configuration file you have to use the `--configuration` option.

```
~$ phpbu --configuration=MyConfig.xml
phpbu 6.0.0 by Sebastian Feldmann and Contributors.

OK (1 backup, 0 checks, 0 encryption, 0 syncs, 0 cleanups)
```

Command-Line-Runner options

Here is the list of available options for the command line runner.

```
$ phpbu --help
phpbu 6.0.0 by Sebastian Feldmann and Contributors.

Usage: phpbu [option]

--bootstrap=<file>       A "bootstrap" PHP file that is included before the backup.
--configuration=<file>   A PHPBU configuration file.
--colors                 Use colors in output.
--debug                  Display debugging information during backup generation.
--generate-configuration Create a new configuration skeleton.
--limit=<subset>         Limit backup execution to a subset.
--simulate               Perform a simulation run with no changes made.
-h, --help               Print this usage information.
-v, --verbose            Output more verbose information.
-V, --version            Output version information and exit.
--version-check          Check whether PHPBU is up to date.
--self-update            Upgrade PHPBU to the latest version.
```

`--bootstrap` A "bootstrap" PHP file that is included before executing the backup.

`--configuration` Path to the phpbu config file to use. See Chapter 2, *Configuration* for more details.

`--colors` Use colors in output.

`--debug` Display debugging information during backup generation.

`--limit` Limit backup execution to a subset. See the limit section for details.

`--restore` Output a guide how to restore your backup. For this to work all your `Sources` and `Crypts` have to implement the `Restorable` interface

`--simulate` Execute PHPBU without actually executing any backup, check, encryption, sync or cleanup task. See the simulation section for details.

Simulation

In order to check what actions PHPBU would perform, PHPBU supports a simulation mode where no backup is actually created and no sync and cleanup tasks are executed. In simulation mode, PHPBU will show you, what it would have done, if it would not have been a simulation run. You will get detailed output, which enables you to track every action PHPBU would have performed.

This is a great way to test if the correct backup commands will be executed and if all the right backups will be cleaned up.

Warning

If PHPBU has to use any kind of credentials executing a binary, like for example the `mysqldump` command, these credentials will be displayed in the simulation output.

If you are extending PHPBU, you can support simulation as well. You can find detailed information on this in Chapter 11, *Extending PHPBU*.

Limit

If you don't want to execute all of your configured backups you can define a subset of backups by using the limit option.

All you have to to, is to set the limit option to a comma separated list of backup names (nameA,nameB,nameC).

Warning

If you don't define explicit backup names, PHPBU will use the source type as backup name as fallback.

Chapter 5. Backup Sources

You can configure multiple backups in one configuration file. Each backup is represented by a `<backup>` Tag. To configure the data that is stored use the `<source>` Tag.

Table 5.1. Supported types of backup sources:

Type	Description
arangodump	Backup ArangoDB with the arangodump command line tool.
elasticdump	Backup Elasticsearch with the elasticdump command line tool.
influxdump	Backup Influxdb with the influxd command line tool.
ldapdump	Backup LDAP data with the ldapdump command line tool.
mongodump	Backup MongoDB with the mongodump command line tool.
mysqldump	Backup MySQL with the mysqldump command line tool.
pgdump	Backup PostgreSQL with the pg_dump command line tool.
redis	Backup redis with the redis-cli command line tool.
rsync	Collect files via the rsync command line tool.
tar	Backup a directory with the tar command line tool.
xtrabackup	Backup MySQL with the Percona xtrabackup command line tool.

ArangoDB

Backup a ArangoDB database with arangodump.

Table 5.2. arangodump-Options

Name	Value	Required	Default	Description
endpoint	string	no	tcp://localhost:8529	URI to your ArangoDB endpoint.
username	string	no	null	Username for the ArangoDB authentication.
password	string	no	null	Password for the ArangoDB authentication.
disableAuthentication	boolean	no	false	Disable the ArangoDB authentication.
database	string	no	_system	Database to backup.

Name	Value	Required	Default	Description
dumpData	boolean	no	true	Dump database data.
includeSystem-Collections	boolean	no	false	Dump system collections as well.
collections	string	no	all	List of collections to dump.
pathToArango-Dump	string	no		Custom arango-dump executable location.

Example 5.1. arangodump XML example

```
<!-- source arangodump -->
<source type="arangodump">
  <option name="database" value="myDatabase" />
  <option name="dumpData" value="true" />
  <option name="collections" value="myCollection1,myCollection2" />
</source>
```

Example 5.2. arangodump JSON example

```
{
  "type": "arangodump",
  "options": {
    "database": "myDatabase",
    "dumpData": "true",
    "collections": "myCollection1,myCollection2"
  }
}
```

Elastic

Backup a Elastic index with elasticdump.

Table 5.3. arangodump-Options

Name	Value	Required	Default	Description
host	string	no	localhost:9200	URI to your Elastic host.
user	string	no	null	Username for the Elastic authentication.
password	string	no	null	Password for the Elastic authentication.
index	string	no	all	Index name to backup.
type	string	data	true	Elastic type to dump.
pathToElastic-Dump	string	no		Custom elastic-dump executable location.

Example 5.3. elasticdump XML example

```
<!-- source elasticdump -->
<source type="elasticdump">
  <option name="index" value="myIndex" />
</source>
```

Example 5.4. elasticdump JSON example

```
{
  "type": "elasticdump",
  "options": {
    "index": "myIndex"
  }
}
```

InfluxDB - influxdump

Backup an InfluxDB database with influxdump.

Table 5.4. influxdump-Options

Name	Value	Required	Default	Description
host	string	no	localhost:8088	Hostname and port of your InfluxDB-Server.
database	string	no	all	Name of database you want to backup, all by default.
pathToInfluxdump	string	no		Custom influxdump executable location.

Example 5.5. influxdump XML example

```
<!-- source influxdump -->
<source type="influxdump">
  <option name="host" value="localhost:8088"/>
  <option name="database" value="myDatabase"/>
</source>
```

Example 5.6. influxdump JSON example

```
{
  "type": "influxdump",
  "options": {
    "host": "localhost:8088",
    "database": "myDatabase"
  }
}
```

LDAP - ldapdump

Backup you LDAP data with ldapdump.

Table 5.5. ldapdump-Options

Name	Value	Required	Default	Description
host	string	no	localhost	Hostname of you LDAP server.
port	int	no	all	Port to connect to your LDAP server.
searchBase	string	no		LDAP search base.
filter	string	no		LDAP search filter.
attrs	string	no		LDAP search attributes.
pathToLdapdump	string	no		Custom path to ldapdump binary.

Example 5.7. influxdump XML example

```
<!-- source ldapdump -->
<source type="ldapdump">
  <option name="host" value="localhost"/>
  <option name="searchBase" value="ou=Users,dc=fr"/>
</source>
```

Example 5.8. influxdump JSON example

```
{
  "type": "ldapdump",
  "options": {
    "host": "localhost",
    "searchBase": "ou=Users,dc=fr"
  }
}
```

MongoDB

Backup a MongoDB database with mongodump.

Table 5.6. mongodump-Options

Name	Value	Required	Default	Description
host	string	no	localhost	Hostname of your MongoDB-Server.
user	string	no	OS-User	Username for the MongoDB authentication.
password	string	no	null	Password for the MongoDB authentication.
authenticationDatabase	string	no	null	MongoDB database that holds the user credentials.

Name	Value	Required	Default	Description
databases	string	no	all	List of databases you want to back-up, all by default.
excludeCollec-tions	string	no	null	List of collections you don't want to backup.
excludeCollection-sWithPrefix	string	no	null	List of collection prefixes to exclude matching collec-tions from backup.
pathToMongo-dump	string	no		Custom mongo-dump executable location.

Example 5.9. mongodump XML example

```
<!-- source mongodump -->
<source type="mongodump">
  <option name="databases" value="myDatabase"/>
  <option name="user" value="user.name"/>
  <option name="password" value="topsecret"/>
  <option name="excludeCollections" value="collectionFoo,collectionBar"/>
</source>
```

Example 5.10. mongodump JSON example

```
{
  "type": "mongodump",
  "options": {
    "databases": "myDatabase",
    "user": "user.name",
    "password": "topsecret",
    "excludeCollections": "collectionFoo,collectionBar"
  }
}
```

MySQL - mysqldump

Backup a MySQL database with mysqldump.

Table 5.7. mysqldump-Options

Name	Value	Required	Default	Description
host	string	no	localhost	Hostname of your MySQL-Server.
port	integer	no	null	Port of your MySQL-Server.
user	string	no	OS-User	Username for the MySQL authenti-cation.
password	string	no	null	Password for the MySQL authenti-cation.

Name	Value	Required	Default	Description
databases	string	no	all	List of databases you want to back-up, all by default.
ignoreTables	string	no	null	List of tables you don't want to backup.
filePerTable	true | false	no	false	Create directory with separate files for each table.
structureOnly	string	no	null	List of tables where only the table structure will be stored. Can not be used with *filePerTable*
hexBlob	true | false	no	false	Use the --hex-blob option to dump blob fields in hex.
lockTables	true | false	no	null	Use the --lock-tables option to lock tables during the dump.
singleTransaction	true | false	no	null	Use the --single-transaction option to add BEGIN SQL statement before dumping data from server.
sslCa	string	no		Path to your ssl-ca file.
skipExtendedInsert	true | false	no	false	Do not use multiple-row INSERT syntax.
skipTriggers	true | false	no	false	Do not execute triggers during backup.
pathToMysqldump	string	no		Custom mysqldump executable location.

Example 5.11. mysqldump XML example

```
<!-- source mysqldump -->
<source type="mysqldump">
  <option name="databases" value="myDatabase"/>
  <option name="user" value="user.name"/>
  <option name="password" value="topsecret"/>
  <option name="ignoreTable" value="tableFoo,tableBar"/>
  <option name="structureOnly" value="logTable1,logTable2"/>
</source>
```

Example 5.12. mysqldump JSON example

```
{
  "type": "mysqldump",
  "options": {
    "databases": "myDatabase",
    "user": "user.name",
    "password": "topsecret",
    "ignoreTable": "tableFoo,tableBar",
    "structureOnly": "logTable1,logTable2"
  }
}
```

MySQL - xtrabackup

Backup a MySQL database with Percona xtrabackup.

Table 5.8. xtrabackup-options

Name	Value	Required	Default	Description
dataDir	string	no		MySQL data directory.
host	string	no	localhost	Host to connect to.
user	string	no	OS-User	User to connect with.
password	string	no	false	Password to authenticate the user.
databases	string	no	-	List of databases to backup, all by default.
include	string	no	-	Pattern to include databases and tables to the backup e.g. `^mydatabase[.]mytable`.
pathToXtraBackup	string	no		Custom xtrabackup executable location.

Example 5.13. xtrabackup XML example

```
<!-- source xtrabackup -->
<source type="xtrabackup">
  <option name="databases" value="myDB1,myDB2" />
</source>
```

Example 5.14. xtrabackup JSON example

```
{
  "type": "xtrabackup",
  "options": {
    "databases": "myDB1,myDB2"
  }
}
```

pgdump

Backup PostgreSQL databases using the pg_dump command line tool.

Table 5.9. pgdump-Options

Name	Value	Required	Default	Description
host	string	no	-	Host to connect to.
port	integer	no	-	Port to use to connect to the PostgreSQL server.
user	string	no	-	User to use to connect.
password	string	no	-	Password to use to authenticate.
database	string	yes	-	Database to backup.
schemaOnly	bool	no	false	Dump only schema information.
dataOnly	string	no	false	Dump no schema information.
schemas	string	no	-	List of schemas to dump, separated by comma.
excludeSchemas	string	no	-	List of schemas to exclude, separated by comma.
tables	string	no	-	List of tables to backup, separated by comma.
excludeTables	string	no	-	List of tables to exclude, separated by comma.
excludeTableData	string	no	-	List of tables where data is not dumped, separated by comma.
noPermissions	bool	no	false	Don't dump any permission schemas.
noOwner	bool	no	false	Don't dump any owner changing statements.
format	string	no	plain	Dump format, plain, custom, directory.
encoding	string	no	-	Set the dump encoding.

Name	Value	Required	Default	Description
pathToPgdump	string	no		Custom pgdump executable location.

Example 5.15. pgdump XML example

```
<!-- source pgdump -->
<source type="pgdump">
  <option name="database" value="myDstabase"/>
  <option name="user" value="myName"/>
  <option name="password" value="topSecret"/>
</source>
```

Example 5.16. pgdump JSON example

```
{
  "type": "pgdump",
  "options": {
    "database": "myDatabase",
    "user": "myName",
    "password": "topSecret",
  }
}
```

redis

Backup Redis data structure store using redis-cli.

Table 5.10. redis-Options

Name	Value	Required	Default	Description
pathToRedisData	string	yes	-	Path to the Redis data .rdb file.
port	integer	no	6379	Port to use to connect to the redis server.
password	string	no	-	Password to use to authenticate.
pathToRedisCli	string	no		Custom redis-cli executable location.

Example 5.17. redis XML example

```
<!-- source redis -->
<source type="redis">
  <option name="pathToRedisData" value="/var/lib/redis/6379/dump.rdb"/>
</source>
```

Example 5.18. redis JSON example

```
{
  "type": "redis",
  "options": {
    "pathToRedisData": "/var/lib/redis/6379/dump.rdb"
```

```
  }
}
```

rsync

Backup files via the rsync command line tool.

Table 5.11. rsync-Options

Name	Value	Required	Default	Description
path	string	yes	-	Path to file/directory to sync.
host	string	no	-	Host to connecto to.
user	string	no	-	User to use to authenticate.
delete	string	no	false	Remove deleted files locally as well.
isDirSync	string	no	false	Keep the directory instead of archiving it at every PHPBU execution.
pathToRsync	string	no		Custom rsync executable location.

Example 5.19. rsync XML example

```
<!-- source rsync -->
<source type="rsync">
  <option name="path" value="/tmp/foo"/>
</source>
```

Example 5.20. rsync JSON example

```
{
  "type": "rsync",
  "options": {
    "path": "/tmp/foo"
  }
}
```

Directories

Backup directories using tar.

Table 5.12. tar-Options

Name	Value	Required	Default	Description
path	string	yes	-	Path to the source directory.
exclude	string	no	-	Comma separated list of paths to exclude.

Name	Value	Required	Default	Description
ignoreFailedRead	boolean	no	false	Ignore changing source directory.
incrementalFile	string	no	-	Incremental cache file.
forceLevelZeroOn	string	no	-	Force a level zero backup at specific times.
compressProgram	string	no	-	Set custom compression program f.e. lbzip2.
removeSourceDir	boolean	no	false	Remove the directory after compression.
throttle	string	no	-	Throttle IO throughput via 'pv' (Linux/Unix only).
pathToTar	string	no		Custom tar executable location.

Example 5.21. tar XML example

```
<!-- source tar -->
<source type="tar">
  <option name="path" value="htdocs/uploads"/>
</source>
```

Example 5.22. tar JSON example

```
{
  "type": "tar",
  "options": {
    "path": "htdocs/uploads"
  }
}
```

Incremental backups

Doing incremental backups with *tar* is also supported. To activate incremental backups you have to specify a cache file where tar can store state information. Tar will then only do incremental backups unless told otherwise. You can force full backups (level zero backups) by removing the cache file manually or by using the *forceLevelZeroOn* option. In the following example incremental backups are activated by storing the backup state in a *metadata.snar* file and `phpbu` will force a level zero backup every Sunday and Wednesday. The backups on Monday, Tuesday, Thursday, Friday and Saturday will only contain the changes to the day before. To for example restore a Saturday backup you will need the backups from Wednesday, Thursday, Friday and Saturday.

Please configure your cleanup strategies accordingly to not use any data.

Example 5.23. tar XML example

```
<!-- source tar -->
<source type="tar">
  <option name="path" value="htdocs/uploads"/>
```

```
  <option name="incrementalFile" value="path/to/metadata.snar" />
  <option name="forceLevelZeroOn" value="%D@Sun|Wed" />
</source>
```

<varlistentry>forceLevelZeroOn
`date mask @ value[|value]`

`%D @ Sun|Web` - Level zero backups on Sunday, and Wednesday

`%H @ 3|15` - Level zero backups at 3am, and 15pm
</varlistentry>

Exclude files or directories

If you want to exclude some files or directories from the created tar file.

Example 5.24. tar XML example

```
<!-- source tar -->
<source type="tar">
  <option name="path" value="htdocs/uploads"/>
  <option name="exclude" value="folderA,fileA.txt,folderB"/>
</source>
```

Example 5.25. tar JSON example

```
{
  "type": "tar",
  "options": {
    "path": "htdocs/uploads",
    "exclude": "folderA,fileA.txt,folderB"
  }
}
```

IO Throttling

If you are experiencing high CPU load during your backups with *tar* you can throttle the IO to reduce CPU load.

Example 5.26. Throttling XML example

```
<!-- source tar -->
<source type="tar">
  <option name="path" value="htdocs/uploads"/>
  <option name="throttle" value="5m"/>
</source>
```

With a configuration like in the example above you make sure that you only write 5 Megabytes each second. This way your backup may take longer, but your CPU is able to handle other stuff as well.

This is done via the CLI tool *pv*. To use this feature you must have *pv* installed on your server. If you are using PHPBU on Windows, this feature is not available.

For more information on *pv* have a look here [https://packages.debian.org/en/stable/pv]

Chapter 6. Backup Validation

You can validate your backup after creation with some simple checks.

Table 6.1. Available checks:

Type	Description
SizeMin	Checks if your backup is at least as big as the configured size.
SizeDiffPreviousPercent	Checks if your backup differs more than a configured value from the previous backup.

Minimal size

Example 6.1. SizeMin XML example

```
<!-- check min size -->
<check type="SizeMin" value="30M"/>
```

Example 6.2. SizeMin JSON example

```
{"type": "SizeMin", "value": "30M"}
```

Compare to previous Backups

Example 6.3. SizeDiffPreviousPercent XML example

```
<!-- check size against previous backups -->
<check type="SizeDiffPreviousPercent" value="10"/>
```

Example 6.4. SizeDiffPreviousPercent JSON example

```
{"type": "SizeDiffPreviousPercent", "value": 10}
```

Chapter 7. Encryption

PHPBU can encrypt your backup using `openssl` or `mcrypt`.

Hint

If the choice is yours, I strongly recommend using openssl. Here [https://paragonie.com/blog/2015/05/if-you-re-typing-word-mcrypt-into-your-code-you-re-doing-it-wrong] is a good article explaining why.

Table 7.1. Available crypts:

Type	Description
mcrypt	Encrypts your backup with the mcrypt command line tool.
openssl	Encrypts your backup with the openssl command line tool.

mcrypt

Table 7.2. mcrypt options

Name	Value	Required	Default	Description
algorithm	string	yes	-	Algorithm to use to encrypt the backup.
key	string	yes	-	Secret key to use for encryption.

Example 7.1. mcrypt XML example

```
<!-- encryption -->
<crypt type="mcrypt">
  <option name="algorithm" value="blowfish"/>
  <option name="key" value="mySecretKey"/>
</crypt>
```

Example 7.2. mcrypt JSON example

```
{
  "type": "mcrypt",
  "options": {
    "algorithm": "blowfish",
    "key": "mySecretKey"
  }
}
```

openssl

Please be sure to use *only* `password` or `certFile`.

Table 7.3. openssl options

Name	Value	Required	Default	Description
password	string	yes	-	Encrypt backup with 'openssl enc -pass...'.
certFile	string	yes	-	Encrypt backup with 'openssl smime ... myCert.pem'.
algorithm	string	yes	-	Algorithm to use to encrypt the backup. *Attention* you have to specify different algorithm names for using `password` and using a `cert file`.
keepUncrypted	boolean	no	false	Don't remove the unencrypted backup.
pathToOpenSSL	string	no	-	Used to specify a special path to the openssl command.

Example 7.3. openssl XML example using password encryption

```
<!-- encryption -->
<crypt type="openssl">
  <option name="password" value="mySecretPassword"/>
  <option name="algorithm" value="aes-256-cbc"/>
</crypt>
```

Example 7.4. openssl JSON example using password encryption

```
{
  "type": "openssl",
  "options": {
    "password": "mySecretPassword",
    "algorithm": "aes-256-cbc"
  }
}
```

Example 7.5. openssl XML example using SSL cert encryption

```
<!-- encryption -->
<crypt type="openssl">
  <option name="certFile" value="ssl/MyCert.pem"/>
  <option name="algorithm" value="aes256"/>
</crypt>
```

Example 7.6. openssl JSON example using SSL cert encryption

```
{
  "type": "openssl",
```

```
  "options": {
    "certFile": "ssl/MyCert.pem",
    "algorithm": "aes256"
  }
}
```

Create a private key and a certificate pem file

To encrypt your backups with a cert file you have to create a *private key* and a *certificate pem file*.

```
$ openssl req -x509 -new -days 100000 -key private.pem -out certificate.pem
```

The created `certificate.pem` is used to encrypt your backups and should be referenced in your phpbu configuration as `certFile`. The `private.pem` file is used to decrypt your backups.

Decrypt

Decrypt a cert file encoded backup

```
$ openssl smime -decrypt -aes256 -inform DER \
  -in backup.tar.bz2.enc \
  -out backup.tar.bz2 \
  -inkey private.pem
```

Decrypt a password encoded backup

```
$ openssl enc -d -a -aes-256-cbc \
  -in backup.tar.bz2.enc \
  -out backup.tar.bz2 \
  -pass pass:mySecretPassword
```

Chapter 8. Sync Backups

It's considered best practice to NOT store your backups locally, or at least not only storing them locally. With PHPBU `Sync` adapters you can copy your backups to different locations.

Caution

If you are syncing your backup to a cloud service it's advised to encrypt your backup beforehand. Especially if your backup contains personal identifiable information [https://en.wikipedia.org/wiki/Personally_identifiable_information].

PHPBU supports cleaning up your locally stored backups by configuring a Cleanup. Note that `Cleanup` configurations do not affect remote files synced with `Sync` configurations.

But some `Sync` adapters support cleaning up remote files as well. This is done by using `cleanup.*` options in your `Sync` configuration. In order to better understand how remote cleanups work and how they are configured have a look at the Cleanups section.

Table 8.1. Supported types of syncs:

Type	Description	Remote Cleanup
amazon	Sync your backup to your Amazon S3 [https://aws.amazon.com/s3/] account.	yes
Azure Blob	Sync your backup to your Azure Blob [https://portal.azure.com] storage.	yes
Dropbox	Sync your backup to a Dropbox [https://www.dropbox.com] account.	yes
Google Drive	Sync your backup to a Google Drive [https://drive.google.com] account.	yes
OpenStack	Sync your backups to an OpenStack [https://www.openstack.org] storage.	yes
rsync	Sync your backups with rsync.	no
sftp	Sync your backup to a server via SFTP.	yes
SoftLayer Object Storage	Sync your backup to a Softlayer [http://www.softlayer.com/] Object Storage account.	no
Yandex Disk	Sync your backup to a Yandex [http://yandex.ru/] account.	no

Amazon S3

Sync your backup to an Amazon S3 account.

If you are not using the PHAR version you have to require `"aws/aws-sdk-php": "^3.10"` in your Composer file.

Table 8.2. amazons3-Options

Name	Value	Required	Default	Description
key	string	yes	-	The Amazon S3 key.
secret	string	yes	-	The Amazon S3 secret.
bucket	string	yes	-	The bucket name where the backup is stored.
region	string	yes	-	The region where the bucket is located e.g. 'eu-central-1'.
path	string	no	/	Path where to store the backup in your bucket.
useMultiPartUpload	boolean	no	false	Use Amazon S3 MultiPartUpload functionality.
cleanup.type	string	no	-	The remote cleanup strategy (capacity|outdated|quantity|stepwise).
cleanup.*	string	no	-	The remote cleanup strategy settings. For example "cleanup.size" if you use "cleanup.type" = "capacity". For details have a look at the corresponding Cleanup configurations.

Example 8.1. amazons3 XML example

```
<!-- sync amazon s3 -->
<sync type="amazons3">
  <option name="key" value="myAwsKey"/>
  <option name="secret" value="myAwsSecret"/>
  <option name="bucket" value="backup"/>
  <option name="region" value="eu-central-1"/>
  <option name="path" value="/some/dir"/>
</sync>
```

Example 8.2. amazons3 JSON example

```
{
  "type": "amazons3",
  "options": {
    "key": "myAwsKey",
    "secret": "myAwsSecret",
```

```
    "bucket": "backup",
    "region": "eu-central-1",
    "path": "/some/dir",
    "useMultiPartUpload": "true"
  }
}
```

Azure Blob

Sync your backup to an Azure Blob storage.

If you are not using the PHAR version you have to require `"microsoft/azure-storage-blob": "~1.4"` in your Composer file.

Table 8.3. azureblob-Options

Name	Value	Required	Default	Description
connection_string	string	yes	-	The Azure Blob storage account connection string.
container_name	string	yes	-	A container where to store the backup.
path	string	no	/	Path where to store the backup in your container.
cleanup.type	string	no	-	The remote cleanup strategy (capacity|outdated|quantity|stepwise).
cleanup.*	string	no	-	The remote cleanup strategy settings. For example "cleanup.size" if you use "cleanup.type" = "capacity". For details have a look at the corresponding Cleanup configurations.

Example 8.3. azureblob XML example

```
<!-- sync azure blob -->
<sync type="azureblob">
  <option name="connection_string" value="DefaultEndpointsProtocol=[http|https];AccountN
  <option name="container_name" value="backup"/>
  <option name="path" value="/some/dir"/>
</sync>
```

Example 8.4. azureblob JSON example

```
{
```

```
  "type": "azureblob",
  "options": {
    "connection_string": "DefaultEndpointsProtocol=[http|https];AccountName=[yourAccount
    "container_name": "backup",
    "path": "/some/dir"
  }
}
```

Dropbox

Sync your backup to a Dropbox account.

If you are not using the PHAR version you have to require `"dropbox/dropbox-sdk": "1.1.*"` in your Composer file.

Table 8.4. Dropbox-Options

Name	Value	Required	Default	Description
token	string	yes	-	The Dropbox authentication token. Go to www.dropbox.com/developers/apps [https://www.dropbox.com/developers/apps] Create your app Choose: dropbox api app files and datastore yes provide some app name "my-dropbox-app" generate access token to authenticate connection to your dropbox
path	string	yes	-	Directory where to store the backup in your Dropbox account.

Example 8.5. Dropbox XML example

```
<!-- sync dropbox -->
<sync type="dropbox">
  <option name="token" value="myCrazyLongApiTokenThatIGotFromDropbox"/>
  <option name="path" value="/some/dir"/>
</sync>
</section>
```

Example 8.6. Dropbox JSON example

```
{
  "type": "dropbox",
  "options": {
```

```
    "token": "myCrazyLongApiTokenThatIGotFromDropbox",
    "path": "/some/dir"
  }
}
```

Google Drive

Sync your backup to a Google Drive account.

If you are not using the PHAR version you have to require `"google/apiclient":"^2.0"` in your Composer file.

Table 8.5. Google Drive-Options

Name	Value	Required	Default	Description
secret	string	yes	-	Google Drive authentication json file.
access	string	yes	-	Json file containing your access token.
parentId	string	yes	-	The Google Drive element id where your backups should be stored.

If you are unsure on how to obtain the secret and access files or the directory ID have a look at `sebastianfeldmann/phpbu-google-drive [https://github.com/sebastianfeldmann/phpbu-google-drive]` a utility to generate your access token and to list the files and their IDs from your Google Drive account.

Example 8.7. Google Drive XML example

```
<!-- sync dropbox -->
<sync type="googledrive">
  <option name="secret" value="config/google/secret.json"/>
  <option name="access" value="config/google/access.json"/>
  <option name="parentId" value="bkjnwqr8123njndcqw12r"/>
</sync>
</section>
```

Example 8.8. Google Drive JSON example

```
{
  "type": "googledrive",
  "options": {
    "secret": "config/google/secret.json",
    "access": "config/google/access.json",
    "parentId": "bkjnwqr8123njndcqw12r"
  }
}
```

OpenStack

Sync your backup to a provider supporting the OpenStack API.

Table 8.6. OpenStack-Options

Name	Value	Required	Default	Description
auth_url	string	yes	-	The remote authentication url.
region	string	yes	-	The OpenStack region.
user	string	yes	-	The user name for authentication.
password	string	yes	-	The user password.
container_name	string	yes	-	The name of the container to store the backup.
service_name	string	no	swift	The service to use for the upload.
path	string	no	-	Remote path to store the backup.

Example 8.9. OpenStack XML example

```
<!-- sync openstack -->
<sync type="openstack">
  <option name="auth_url" value="www.example.com"/>
  <option name="region" value="my-region"/>
  <option name="user" value="username"/>
  <option name="password" value="top-secret"/>
  <option name="path" value="/some/path"/>
</sync>
```

Example 8.10. OpenStack JSON example

```
{
  "type": "openstack",
  "options": {
    "auth_url": "www.example.com",
    "region": "my-region",
    "user": "username"
    "password": "my-secret"
    "path": "/some/path",
  }
}
```

Rsync

Sync your backup via the rsync command.

Table 8.7. rsync-Options

Name	Value	Required	Default	Description
path	string	yes	-	The remote path where your backups should be synced to.

Name	Value	Required	Default	Description
host	string	yes	-	The remote host where your backups should be synced to.
user	string	no	OS-User	The user to connect to the remote host. Make sure the user is able to connect without entering a password otherwise you get prompted for a password while executing phpbu.
dirsync	boolean	no	false	Sync the target directory instead of syncing only the target file.
delete	boolean	no	false	Add the --delete option to the rsync call, so locally deleted files will be deleted remotely as well.
exclude	string	no	-	List of files to exclude from the sync separated by ":" e.g. "*.suffix:foo.bar".
args	string	no	-	Advanced mode to use completely custom options. "rsync {args}". WARNING: phpbu is not escaping this in any way so use with caution! Use %TARGET_FILE% and %TARGET_DIR% as reference to your created backup.

Example 8.11. rsync XML example

```
<!-- sync rsync -->
<sync type="rsync">
  <option name="path" value="/backup/some/path"/>
  <option name="dirsync" value="true"/>
  <option name="host" value="backup.example.com"/>
  <option name="user" value="backup"/>
</sync>
```

Example 8.12. rsync JSON example

```
{
  "type": "rsync",
  "options": {
    "path": "/backup/some/path",
    "dirsync": "true",
    "host": "backup.example.com",
    "user": "backup"
  }
}
```

SFTP / FTP

Copy your backup to another server via SFTP or FTP.

If you want to use SFTP and you are not using the PHAR version you have to require `"phpseclib/phpseclib": "2.0.*@dev"` in your Composer file. For this to work you have to set the `minimum-stability` to `dev`.

If you want to use the FTP sync your PHP has to be compiled with `--enable-ftp`.

Table 8.8. (s)ftp-Options

Name	Value	Required	Default	Description
host	string	yes	-	The host you want to copy your backups to.
port	integer	no	22	The port you want to connect to.
user	string	yes	-	The user you want to connect with.
password	string	no	-	The password to authenticate the user. If 'key' is provided this will be used as private key password.
key	string	no	-	Path to private key file to authenticate the user.
path	string	yes	-	The remote path where to copy the backup.
passive	boolean	no	false	Use passive FTP mode.

Example 8.13. sftp XML example

```
<!-- sync sftp -->
<sync type="sftp">
  <option name="host" value="backup.example.com"/>
  <option name="port" value="22"/>
  <option name="user" value="user.name"/>
  <option name="password" value="topsecret"/>
  <option name="path" value="backup/someName"/>
```

```
  <option name="passive" value="true"/>
</sync>
```

Example 8.14. sftp JSON example

```
{
  "type": "sftp",
  "options": {
    "host": "backup.example.com",
    "port": 22,
    "user": "user.name",
    "password": "topsecret",
    "path": "backup/someName",
    "passive": "false"
  }
}
```

If you want to use plain FTP just use `ftp` as type, options stay the same.

Softlayer Object Storage

Sync your backup to a Softlayer account.

If you are not using the PHAR version you have to require `"softlayer/objectstorage": "dev-master"` in your Composer file. For this to work you have to set the `minimum-stability` to `dev`.

Table 8.9. softlayer-Options

Name	Value	Required	Default	Description
user	string	yes	-	The user you want to connect with.
secret	string	no	-	The API key to authenticate the user.
host	string	yes	-	The host you want to copy your backups to.
container	string	yes	-	The Object Storage Container where the backup is stored.
path	string	yes	-	The remote path where to copy the backup.

Example 8.15. softlayer XML example

```
<!-- sync softlayer object storage -->
<sync type="softlayer">
  <option name="user" value="user.name"/>
  <option name="secret" value="topsecret"/>
  <option name="host" value="some.softlayer.domain.com"/>
  <option name="container" value="backup"/>
  <option name="path" value="/backup/someName"/>
</sync>
```

Example 8.16. softlayer JSON example

```
{
  "type": "softlayer",
  "options": {
    "user": "user.name",
    "secret": "topsecret",
    "host": "some.softlayer.domain.com",
    "container": "backup",
    "path": "/backup/someName"
  }
}
```

Yandex Disk

Sync your backup to Yandex account.

If you are not using the PHAR version you have to require `"arhitector/yandex": "^2.0"` in your Composer file.

This is what you have to do:

1. Go to https://oauth.yandex.ru/client/new
2. Create your app
3. Check all disk permissions
4. Generate access token
5. Go to https://oauth.yandex.ru/authorize?response_type=token&client_id=APP_ID (replace APP_ID with ID given to you)
6. Then you should get token parameter from query parameters of opened page

Table 8.10. softlayer-Options

Name	Value	Required	Default	Description
user	string	yes	-	The user you want to connect with.
token	string	no	-	The API token to authenticate the user.
path	string	yes	-	The remote path where to put the backup.

Example 8.17. Yandex XML example

```
<!-- sync yandex disk -->
<sync type="yandex-disk">
  <option name="token" value="mnahg6-1knl2l2-b1vf4"/>
  <option name="path" value="/backup/someName"/>
</sync>
```

Example 8.18. Yandex JSON example

```
{
```

```
  "type": "yandex-disk",
  "options": {
    "user": "mnahg6-1knl2l2-b1vf4",
    "path": "/backup/someName"
  }
}
```

Chapter 9. Cleanup backups

You can remove old backups to limit the space your backups consume on your local hard drive. It's important to note, that only *local* backups will be cleaned up. So whatever kind of `Sync` you are using. `Cleanup` won't touch your remote files.

If you want to remove your synced backups as well, and you are not using the Rsync sync with its `delete` option. Have a look at the remote cleanup section.

Table 9.1. Supported types of cleanup:

Type	Description
Capacity	Define the size your backups should occupy. If your backups start to exceed this value PHPBU will start to delete backups, starting with the oldest ones.
Outdated	Remove backups older than a configured time-value. For example "2W" to delete all backups older than two weeks.
Quantity	Keep only a configured amount of backups.
Stepwise	Keep different amount of backups for different periods of time. For example keep all backups you made for the last 3 days, keep one for each week for the last 4 weeks, keep one for each month for the last 6 months and one for each year for at least 3 years.

Cleanup by capacity

Remove oldest backups if all created backups exceed the configured limit.

Table 9.2. Capacity-Options

Name	Value	Required	Default	Description
size	string	yes	-	Space your backups are allowed to occupy. e.g. 500M for 500 Megabytes or 1G for one Gigabyte.
deleteTarget	boolean	no	false	If you don't want to keep any backups locally, just specify a size of "0B", set this to "true" and even the current backup will be deleted.

Example 9.1. capacity XML example

```
<!-- cleanup capacity: keep 250 Megabytes of backups -->
<cleanup type="capacity">
  <option name="size" value="250M"/>
```

```
  <option name="deleteTarget" value="false"/>
</cleanup>
```

Example 9.2. capacity JSON example

```
{
  "type": "capacity",
  "options": {
    "size": "250M",
    "deleteTarget": "false"
  }
}
```

Cleanup by date

Remove backups that are older than a configured value.

Table 9.3. Outdated-Options

Name	Value	Required	Default	Description
older	string	yes	-	Time to keep backups. e.g. 1m for one month or 20d for twenty days.

Example 9.3. outdated XML example

```
<!-- cleanup outdated: keep backups for 2 weeks -->
<cleanup type="outdated">
  <option name="older" value="2W"/>
</cleanup>
```

Example 9.4. outdated JSON example

```
{
  "type": "Outdated",
  "options": {
    "older": "2W"
  }
}
```

Cleanup by quantity

Keep only a configured amount of backups.

Table 9.4. Quantity-Options

Name	Value	Required	Default	Description
amount	string	yes	-	The amount of backups to keep.

Example 9.5. quantity XML example

```
<!-- cleanup quantity: keep the last 20 backups -->
```

```
<cleanup type="quantity">
  <option name="amount" value="20"/>
</cleanup>
```

Example 9.6. quantity JSON example

```
{
  "type": "quantity",
  "options": {
    "amount": 20
  }
}
```

Cleanup stepwise

Keep more backups in the recent past and keep less backups for the distant past. The following table illustrates how this works.

```
| for x days  | for x days        | for x weeks           | for x month keep   |
        | keep all    | keep one per day  | keep one per week     | keep one per month |
--------+-------------+-------------------+-----------------------+--------------------+
backups | ............| . . . . . . . . . | .       .       .     | .                  . |
```

So if you start to backup now your amount of backups will grow for the configured years to keep at least one backup. But by then the amount of your backups will be constantly the same.

Table 9.5. Stepwise-Options

Name	Value	Required	Default	Description
daysToKeepAll	integer	yes	0	Days to keep all backups you made.
daysToKeepDaily	integer	yes	0	Days to keep at least one backup you made a day.
weeksToKeep-Weekly	integer	yes	0	Amount of weeks to keep at least one backup for each week.
monthToKeep-Monthly	integer	yes	0	Amount of month to keep at least one backup for each month.
yearsToKeepYear-ly	integer	yes	0	Amount of years to keep at least one backup for each year.

Example 9.7. stepwise XML example

```
<!-- cleanup stepwise -->
<cleanup type="stepwise">
  <option name="daysToKeepAll" value="2" />
  <option name="daysToKeepDaily" value="5" />
  <option name="weeksToKeepWeekly" value="3" />
  <option name="monthToKeepMonthly" value="4" />
```

```
  <option name="yearsToKeepYearly" value="10" />
</cleanup>
```

Example 9.8. stepwise JSON example

```
{
  "type": "stepwise",
  "options": {
    "daysToKeepAll": 2,
    "daysToKeepDaily": 5,
    "weeksToKeepWeekly": 3,
    "monthToKeepMonthly": 4,
    "yearsToKeepYearly": 10
  }
}
```

Remote cleanup

Some sync implementations support to cleanup remote files as well. To check if the sync of your choice supports remote cleanup have a look at the sync list.

Remote cleanups are configured within your Sync configuration similar to local cleanups. The only difference is that all options get prefixed by `cleanup.`. To better understand this have a look at the following examples.

Example 9.9. Remote cleanup XML example

```
<!-- cleanup stepwise -->
<sync type="dropbox">
  <!-- some sync relevant options -->
  <option name="token" value="mysecrettoken" />
  <option name="path" value="/backups" />
  <!-- remote cleanup options -->
  <option name="cleanup.type" value="quantity" />
  <option name="cleanup.amount" value="10" />
</cleanup>
```

Example 9.10. Remote cleanup JSON example

```
{
  "type": "dropbox",
  "options": {
    "token": "mysecrettoken",
    "path": "/backups",
    "cleanup.type": "quantity",
    "cleanup.amount": 10
  }
}
```

Chapter 10. Logging

JSON

You can create a simple json logfile with PHPBU's json logger.

Example 10.1. json XML example

```
<!-- create a json logfile -->
<log type="json" target="backup/log.json"/>
```

Example 10.2. json JSON example

```
{"type": "json", "target": "backup/log.json"}
```

E-Mail

PHPBU uses SwiftMailer to send backup reports to one or more configured email addresses. If you just want to get notified if something went wrong, you can use the `sendOnlyOnError` option to not send any email on a successful backup.

Table 10.1. Email-Options

Name	Value	Required	Default	Description
recipients	string	yes	-	List of emails separated by semicolon.
sendOnlyOnError	string	no	false	Sending reports only if something goes wrong.
subject	string	no	PHPBU Backup Report from $HOSTNAME	Email subject of the backup report.
transport	string	yes	-	SwiftMailer Transport that's used to send the email (mail, sendmail, smtp, null).
sender.mail	string	phpbu@hostname	-	The sender email address
sender.name	string	no	OS-User	The sender name.
sender.name	string	no	OS-User	The sender name.
sendmail options				
sendmail.path	string	no	-	Path to local sendmail binary.
sendmail.options	string	no	-	Sendmail options (e.g. -bs).
SMTP options				
smtp.port	string	no	25	Port to use to connect to SMTP server.

Name	Value	Required	Default	Description
smtp.host	string	no	-	SMTP hostname.
smtp.username	string	no	-	The SMTP login.
smtp.password	string	no	-	The SMTP password.
smtp.encryption	string	no	-	Type of encryption (e.g. ssl).

Example 10.3. mail XML example

```
<!-- use mail to keep up to date with your backup creation -->
<log type="mail">
  <option name="transport" value="mail"/>
  <option name="recipients" value="user.name@example.com"/>
</log>
```

Example 10.4. mail JSON example

```
{
  "type": "mail",
  "options": {
     "transport": "mail",
     "recipients": "user.name@example.com"
   }
}
```

Telegram

You can log to a Telegram group or contact.

Table 10.2. Telegram-Options

Name	Value	Required	Default	Description
chat_id	string	yes	-	Telegram chat ID
bot_id	string	no	-	Telegram bot ID.
bot_token	string	no	-	Telegram bot authentication token.

Example 10.5. Telegram XML example

```
<!-- write to Telegram chat -->
<log type="telegram">
  <option name="chat_id" value="YOUR_CHAT_ID"/>
  <option name="bot_id" value="YOUR_BOT_ID"/>
  <option name="bot_token" value="YOUR_BOT_TOKEN"/>
</log>
```

Example 10.6. Telegram JSON example

```
{
  "type": "telegram",
  "options": {
     "chat_id": "YOUR_CHAT_ID",
     "bot_id": "YOUR_BOT_ID",
     "bot_token": "YOUR_BOT_TOKEN"
```

```
   }
}
```

Webhook

You can call a webhook and PHPBU will send report data to the webhook.

Table 10.3. Webhook-Options

Name	Value	Required	Default	Description
uri	string	no	-	URI to call
username	string	no	-	Basic auth user name.
password	string	no	-	Basic auth password.
method	string	no	get	HTTP request method (get, post).
contentType	string	no	application/json	Post method request body content type.
template	string	no	-	A template to use for the request body For example if you want to you xml over json.
timeout	integer	no	-	How long until the request times out (seconds)

Example 10.7. webhook XML example

```
<!-- call webhook -->
<log type="webhook">
  <option name="uri" value="http://example.com/hook"/>
</log>
```

Example 10.8. webhook JSON example

```
{
  "type": "webhook",
  "options": {
     "uri": "http://example.com/hook"
   }
}
```

If you change the request method to post by default you will receive a request body in the following format.

Example 10.9. Default request body example

```
{
  "status": 0,
  "timestamp": 12783781381,
  "duration": 234.3402,
  "backupCount": 1,
```

```
  "backupFailed": 0,
  "errorCount": 0,
  "errors": [],
  "backups": [
    {
      "name":
      "status":
      "checks": {
          "executed": 1,
          "failed": 0,
      },
      "crypt": {
          "executed": 1,
          "skipped": 0,
          "failed": 0,
      },
      "syncs" => {
          "executed": 1,
          "skipped": 0,
          "failed": 0
      },
      "cleanup" => {
          "executed": 1,
          "skipped": 0,
          "failed": 0
      }
    }
  ]
}
```

If this format doesn't work for you, you can define your own request body with a template.

Example 10.10. Template example

```
<?xml version="1.0" encoding="UTF-8"?>
<report>
  <status>%status%</status>
  <date>%timestamp%</date>
  <backups>
    %%backup%%
    <backup>
      <name>%name%</name>
      <status>%status%</status>
    </backup>
    %%backup%%
  </backups>
  <errors>
    %%error%%
    <error class="%class%" message="%message%" file="%file%" line="%line%" />
    %%error%%
  </errors>
</report>
```

Prometheus

You can create a file containing meta data which can be consumed by Prometheus.

Example 10.11. Prometheus XML example

```
<!-- call prometheus -->
<log type="prometheus">
```

```
  <option name="target" value="backup/log.prom"/>
</log>
```

Example 10.12. Prometheus JSON example

```
{
  "type": "prometheus",
  "target": "backup/log.prom"
}
```

Example 10.13. Example output

```
# HELP phpbu_backup_success Whether or not the backup succeeded
# TYPE phpbu_backup_success gauge
phpbu_backup_success{name="backupName0"} 1
phpbu_backup_success{name="backupName1"} 0

# HELP phpbu_backup_duration The total time the backup took to execute
# TYPE phpbu_backup_duration gauge
phpbu_backup_duration{name="backupName0} 10.14783922
phpbu_backup_duration{name="backupName1} 166.72893933

# HELP phpbu_backup_last_run The unix timestamp of the last run
# TYPE phpbu_backup_last_run counter
phpbu_backup_last_run{name="backupName0} 1586983854
phpbu_backup_last_run{name="backupName1} 1586985773

# HELP phpbu_backup_size The size of the last successful backup
# TYPE phpbu_backup_size gauge
phpbu_backup_size{name="backupName0} 92474832
phpbu_backup_size{name="backupName1} 374893
```

Chapter 11. Extending PHPBU

You can extend PHPBU with your own Source, Check, Crypt, Sync, Cleanup, Adapter and Logger implementations.

All you have to do is to register your implementation at the PHPBU Factory. You can do this by adding you own bootstrap file.

```
phpbu --bootstrap=extend.php
```

Your extend.php file could look something like this:

Example 11.1. Extend bootstrap

```
<?php
  // make your class accessible
  require 'Acme/MySource.php';
  // register your class as a source
  try {
      phpbu\App\Factory::register('source', 'mysource', '\\Acme\\MySource');
  } catch (Exception $e) {
      die($e->getMessage());
  }
```

For this to work your class Acme\MySource has to implement the `phpbu\App\Backup\Source` Interface. After registering your Source you can use `mysource` as source-type within your XML or JSON configuration like this.

Example 11.2. Custom Source XML example

```
<source type="mysource"></source>
```

Example 11.3. Custom Source JSON example

```
{"type": "mysource"}
```

If the alias is already taken this will throw an Exception. You can force PHPBU to overwrite any previously registered class using the $force parameter. Even the PHPBU sources could be replaced with custom implementations.

Example 11.4. Overwrite default sources

```
<?php
// make your class accessible
require 'Acme/MyMysqldump.php';
// register your class as source, override already registered class
phpbu\App\Factory::register('source', 'mysqldump', '\\Acme\\MyMysqldump', true);
```

Executing and simulating

If you are extending PHPBU you have two options. The first is to simply implement the execution interface. This way you can execute your own Source, Check, Crypt, Sync or Cleanup tasks. The second option is to implement the respective `Simulator` interface. Choosing this option you not only have to implement the execution part but rather implement a simulation part as well.

Simulation is supported out of the box for every implementation, but choosing option two allows you to add viable information about the actions you perform in your code within a simulation run.

Table 11.1. Types to register:

Type	Interface for execution only	Interface for execution and simulation
source	phpbu\App\Backup\Source	phpbu\App\Backup\Source \Simulator
check	phpbu\App\Backup\Check	phpbu\App\Backup\Check\Simulator
crypt	phpbu\App\Backup\Crypt	phpbu\App\Backup\Crypt
sync	phpbu\App\Backup\Sync	phpbu\App\Backup\Sync\Simulator
cleanup	phpbu\App\Backup\Cleanup	phpbu\App\Backup\Cleanup \Simulator
adapter	phpbu\App\Adapter	-
logger	phpbu\App\Backup\Logger	-

Create a custom Source

A minimal custom Source class could look like this.

Example 11.5. Create a custom source

```
<?php
namespace Acme;

use \phpbu\App\Backup\Result;
use \phpbu\App\Backup\Source;
use \phpbu\App\Backup\Source\Status;
use \phpbu\App\Backup\Target;

class MySource implements Source
{
    /**
     * Some data that has to be configured.
     */
    private $someConfigValue;

    /**
     * Here you should validate the configuration and setup your class.
     *
     * @param array $conf
     */
    public function setup(array $conf)
    {
        // here you are getting all of your configured options
        // $conf[ <option name> ] = <option value>
        $this->someConfigValue = $conf['foo']
    }

    /**
     * In here you should create your backup.
     *
     * @return \phpub\App\Backup\Source\Status
     * @throws \phpbu\App\Backup\Source\Exception
     */
    public function backup(Target $target, Result $result) : Status
    {
        // use these methods to store the backup at the configured location
```

```
        // $target->getPath()
        // $target->getPathname()
        // $target->getFilename()
        // to know if the backup should be compressed use
        // $target->shouldBeCompressed()
        // to get the compression settings use
        // $target->getCompressor()
        // if you want to log some debug information use
        // $result->debug('some message');
        // anything bad happens throw a \phpbu\App\Exception
        // return a backup status
        // this is important so the runner knows if it still has to compress the backup
        // return Status::create()->uncompressed($pathToUncompressedFile);
    }
}
```

Create a custom Check

Custom Check implementation example.

Example 11.6. Create a custom check

```
<?php
namespace Acme;

use \phpbu\App\Backup\Check;
use \phpbu\App\Backup\Collector;
use \phpbu\App\Backup\Target;

class MyCheck implements Check
{
    /**
     * Perform your check.
     */
    public function pass(Target $target, $value, Collector $collector) : bool
    {
        // use Target to refer to the created backup
        // $target->getPathname()
        // $value is the configured value
        // <check type="mycheck" value="myvalue"/>
        // $value = "myvalue"
        // use the collector to get a list of previous backups array<splFileInfo>
        // $history = $collector->getBackups()
        // throw a \phpbu\App\Backup\Check\Exception if something bad is happening
        // finally return if the check passes or not
        return $boolean;
    }
}
```

Create a custom Sync

Implementing a custom Sync.

Example 11.7. Create a custom sync

```
<?php
namespace Acme;

use \phpbu\App\Backup\Sync;
use \phpbu\App\Backup\Target;
```

```
class MySync implements Sync
{
    /**
     * Some data that has to be configured.
     */
    private $someConfigValue;

    /**
     * Here you should validate the configuration and setup your class.
     */
    public function setup(array $conf)
    {
        // here you are getting all of your configured options
        // $conf[ <option name> ] = <option value>
        $this->someConfigValue = $conf['foo']
    }

    /**
     * Execute your sync.
     */
    public function sync(Target $target, Result $result)
    {
        // use Target to refer to the created backup
        // $target->getPathname()
        // execute your sync
        // if you want to log some debug information use
        // $result->debug('some message');
        // throw a \phpbu\App\Backup\Sync\Exception if something is going wrong
    }
}
```

Create a custom Cleaner

Implementing a custom cleaner.

Example 11.8. Create a custom cleaner

```
<?php
namespace Acme;

use \phpbu\App\Backup\Collector;
use \phpbu\App\Backup\Sync;
use \phpbu\App\Backup\Target;

class MyCleaner implements Sync
{
    /**
     * Some data that has to be configured.
     */
    private $someConfigValue;

    /**
     * Here you should validate the configuration and setup your class.
     */
    public function setup(array $conf)
    {
        // here you are getting all of your configured options
        // $conf[ <option name> ] = <option value>
        $this->someConfigValue = $conf['foo']
    }
```

```
    /**
     * Execute your cleanup.
     */
    public function cleanup(Target $target, Collector $collector, Result $result)
    {
        // use Target to refer to the created backup
        // $target->getPathname()
        // use the collector to get a list of previous backups array<splFileInfo>
        // delete files matching your cleanup rules
        // $history = $collector->getBackups()
        // if you want to log some debug information use
        // $result->debug('some message');
        // throw a \phpbu\App\Backup\Cleaner\Exception if something is going wrong
    }
}
```

Create a custom Adapter

Custom Adapter implementation example.

Example 11.9. Create a custom adapter

```
<?php
namespace Acme;

use \phpbu\App\Adapter;

class MyAdapter implements Adapter
{
    /**
     * Setup the adapter.
     *
     * @param  array $conf
     * @return void
     */
    public function setup(array $conf)
    {
        // here you will get all configured adapter options
    }

    /**
     * Return a value for a given path.
     *
     * @param  string $path
     * @return string
     */
    public function getValue(string $path) : string
    {
        // path is everything behind the second colon
        // adapter:name:$path
        return 'some_value';
    }
}
```

Create a custom Logger

List of available events:

- phpbu.debug
- phpbu.app_start

- phpbu.app_end
- phpbu.backup_start
- phpbu.backup_failed
- phpbu.backup_end
- phpbu.crypt_start
- phpbu.crypt_failed
- phpbu.crypt_end
- phpbu.check_start
- phpbu.check_failed
- phpbu.check_end
- phpbu.sync_start
- phpbu.sync_failed
- phpbu.sync_skipped
- phpbu.sync_end
- phpbu.cleanup_start
- phpbu.cleanup_failed
- phpbu.cleanup_skipped
- phpbu.cleanup_end

Implementing a custom logger.

Example 11.10. Create a custom logger

```php
<?php
namespace Acme;

use phpbu\App\Event;
use phpbu\App\Log\Logger;

class MyLogger implements Logger
{
    /**
     * Logger interface requires 'getSubscribedEvents' method.
     * Define the events you want to get notified about.
     */
    public static function getSubscribedEvents()
    {
        return [
            'phpbu.debug'   => 'onDebug',
            'phpbu.app_end' => 'onPhpbuEnd',
        ];
    }

    /**
     * Logger interface requires 'setup' method to configure your logger.
     * Here you should validate the configuration and setup your class.
```

```
     */
    public function setup(array $conf)
    {
        // here you are getting all of your configured options
        // $conf[ <option name> ] = <option value>
    }

    /**
     * Handle the debug event.
     */
    public function onDebug(Event\Debug $event)
    {
        // use $event->getMessage() to get the debug message
    }

    /**
     * Handle phpbuEnd event
     */
    public function onPhpbuEnd(Event\App\End $event)
    {
        // handle the phpbuEnd
        // use $event->getResult() to get the application result
    }
}
```

Summary

Example 11.11. Example file structure

```
acme/
├── backup/
├── src/
│   ├── bootstrap.php
│   ├── MyCheck.php
│   ├── MyCleaner.php
│   ├── MyCrypt.php
│   ├── MySource.php
│   └── MySync.php
│
├── phpbu.phar
└── phpbu.xml.dist
```

Example 11.12. Example bootstrap.php

```
<?php
// use your autoloader or require your classes manually
// so phpbu can find them while executing you backup
// register your class as source, you may override already registered classes
phpbu\App\Factory::register('source', 'mysource', '\\Acme\\MySource');
phpbu\App\Factory::register('check', 'mycheck', '\\Acme\\MyCheck');
phpbu\App\Factory::register('cleanup', 'mycleanup', '\\Acme\\MyCleaner');
```

Example 11.13. Example phpbu.xml.dist

```
<?xml version="1.0" encoding="UTF-8"?>
<phpbu xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
       xsi:noNamespaceSchemaLocation="http://schema.phpbu.de/6.0/phpbu.xsd">
  <backups>
    <backup>
      <!-- source -->
      <source type="mysource">
```

```
        <option name="foo" value="bar"/>
      </source>
      <!-- where should the backup be stored -->
      <target dirname="backup"
              filename="mysource-%Y%m%d-%H%i.backup"
              compress="bzip2"/>
      <!-- check the created backup -->
      <check type="mycheck" value="100"/>
      <!-- cleanup the backup location -->
      <cleanup type="mycleanup">
        <option name="foo" value="bar"/>
      </cleanup>
    </backup>
  </backups>
</phpbu>
```

Chapter 12. Framework integrations

Laravel

The `laravel-phpbu` package integrates `phpbu` into the Laravel framework so you can use the `artisan` command to execute your backups and a Laravel style PHP configuration to set them up.

Requirements

- PHP 7.0
- Laravel 5.*
- phpbu 6.0.*

Installation

Use Composer to install the package.

```
composer require "phpbu/phpbu-laravel"
```

Add the package ServiceProvider to your `config/app.php` configuration file.

```
'providers' => [
    /*
    * phpbu Backup Service Providers...
    */
    phpbu\Laravel\ServiceProvider::class,
];
```

Finally use the Laravel `artisan` command to create a configuration skeleton by publishing the package.

```
php artisan vendor:publish --provider="phpbu\Laravel\ServiceProvider"
```

After publishing the ServiceProvider a `phpbu.php` configuration file is created in your config directory.

Configuration

There are two ways of configuring your backup.

1. Use the created `phpbu.php` configuration file
2. Use a standard `phpbu.xml` or `phpbu.json` configuration file

The main difference between those two options is the implemented feature set.

While the PHPBU configuration files give you full access to all features of PHPBU the Laravel configuration file currently does not support all features of PHPBU, for example: encryption.

Using the Laravel configuration

The main concept of configuring backups stays the same. A backup consists of a source and a target. The source represents the data you want to backup. The target represents the location where you want

to store your backup. You can add checks, cleanups and syncs to a backup to validate, cleanup or sync your backup to another location.

In the Laravel configuration file you can specify two types of backups, `directories` and `databases` (MySQL, PostgreSQL).

Directories

Define the directory you want to backup and the target location where to store your backup.

```
'directories' => [
        [
            'source' => [
                'path'    => storage_path('app'),
                'options' => [],
            ],
            'target' => [
                'dirname'     => storage_path('/backup/app'),
                'filename'    => 'app-%Y%m%d-%H%i.tar',
                'compression' => 'bzip2',
            ]
        ]
    ],
```

Databases

Just define the Laravel database connection configured in your `databases.php` configuration you want to backup and you are done. You can overwrite every setting defined with the specific option, for example `username` or `password` in case you have to use different credentials to backup your database.

You can use every option the mysqldump source supports for example to exclude some tables. Just use the *option-name* as index and the *option-value* as value.

```
'databases' => [<emphasise>
        [
            'source' => [
                'connection' => 'mysql',
                'options'    => []
            ],
            'target' => [
                'dirname'     => storage_path('backup/db'),
                'filename'    => 'dump-%Y%m%d-%H%i.sql',
                'compression' => 'bzip2',
            ]
        ],
    ],
```

Adding Check, Sync and Cleanup

Add *check*, *sync* and *cleanup* definitions to your backup configuration.

```
'check' => [
                'type'  => 'SizeMin',
                'value' => '10B',
            ],
            'sync' => [
              'filesystem' => 's3',
              'path'       => '/backups/db'
            ],
            'cleanup' => [
```

```
                'type'    => 'quantity',
                'options' => [
                    'amount' => '20'
                ]
            ]
```

For a list of available `checks` and `cleanups` check the corresponding documentation sections.

To sync your backups you can use every filesystem defined in your Laravel `filesystems.php` configuration file.

Using a PHPBU configuration file

If you want to use a PHPBU configuration file your Laravel phpbu.php configuration should look something like this.

```php
<?php
return [
    /*
    |--------------------------------------------------
    | phpbu configuration
    |--------------------------------------------------
    |
    | Path to a phpbu configuration xml or json file.
    */

    'phpbu' => base_path('phpbu.xml'),
];
```

For this to work you have to setup a valid phpbu.xml configuration file in your project root.

Remember that all paths in a PHPBU configuration have to be absolute or relative to the specified PHPBU configuration file.

Usage

To execute the backup use the `artisan` command line tool.

```
php artisan phpbu:backup
```

To execute a dry-run without making any changes.

```
php artisan phpbu:backup --phpbu-simulate
```

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```

```
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