



MapGuide OpenSource Repository Management

Back up, restore, and recover your resource repository.

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1. Introduction

This document describes the management of the MapGuide repositories. This includes backing up, restoring and recovering the repositories.

The MapGuide server consists of the following 3 types of repositories:

1. **Library**
Used for persistent storage. It corresponds to what is shown in the Site Explorer when you use the Studio application.
2. **Site**
Used for persistent storage of the Users/Groups/Roles information.
3. **Session**
Holds data only for the user's current session and is automatically deleted by the server if they have not been used for a certain length of time. The server creates session repositories automatically as required.

The backup/restore/recovery operations described in this document only cover the MapGuide server repositories and not any of the data files. The data files stored in the sub directories in the default folder must be managed separately using standard file-based backup/restore/recovery methods:

- "C:\Program Files\MapGuideOpenSource\Server\Repositories\Library\DataFiles" (Windows OpenSource version)
- "/usr/local/mapguideopensource/server/Repositories/Library/DataFiles" (Linux OpenSource version)

2. Supporting Utility

MapGuide provides a PHP script, RepositoryAdmin.php, to back up or restore repositories.

Syntax:

```
php RepositoryAdmin.php [-c {Backup|Restore}] [-l {0 - 10}] [-i "/input/path"] [-o "/ouput/path"]
```

Options:

Flags	Values
-c	Name of the command: = Backup , to back up repositories. = Restore , to restore repositories (any existing file directly under the specified output directory will be moved to a time-stamped backup sub-directory).
-l	Incremental level (from 0 to 10), only applicable to the Backup command. = 0, Offline (cold) backup (A full snapshot is always taken.) > 0, Online (hot) backup. For example, for an incremental level value of 2: <ul style="list-style-type: none">➤ If the number of active log files in the previous snapshot is less than or equal to 2, an incremental snapshot is taken.➤ If the number of active log files in the previous snapshot is greater than 2, a full snapshot is taken. Note that active log files are files containing data that has NOT been saved to the database (by default, the size of a log file is about 10 MB).
-i	Absolute path to the source location from where the repository is backed up or restored.
-o	Absolute path to the destination location to where the repository is backed up or restored. For offline (cold) backups, repositories are archived to a time-stamped sub-directory. For

online (hot) backups, repositories are archived to the "CurrentHotBackup" or a time-stamped sub-directory when taking an incremental or full snapshot respectively.

The MapGuide server uses the Berkeley database which uses write-ahead-logging to ensure recoverability. That means before any change is made to a database, information about the change is written to a log file. Active log files contain data that has NOT been saved to the database. The size of a log file is currently configured to be about 10 MB. Therefore, the maximum amount of data that has NOT been saved to the database is approximately 100 MB (10 active log files X 10 MB per log file). The server controls the number of active log files internally (and would keep it well under 10).

Notes:

The "at" program available on both Windows and Linux can be used to run a backup at a specified time and date.

3. Backup

MapGuide will support both "Hot" and "Cold" repository backup. The frequency that your repository is backed up depends on the data and how often it is updated.

3.1 Offline (Cold)

To create an offline (cold) backup:

1. Shut down the server by stopping the "MapGuide Server" service on Windows or the daemon on Linux.
2. Run BackUpOfflineRepositories.bat or BackUpOfflineRepositories.sh on Windows or Linux respectively.

Alternatively, you can manually copy all of the files from the "Repositories" directory (e.g. "C:\Program Files\MapGuideOpenSource\Server\Repositories" on Windows, or "/usr/local/mapguideopensource/server/Repositories" on Linux) to the backup location.

3. Restart the server service on Windows or the daemon on Linux.

3.2 Online (Hot)

To create an online (hot) backup:

1. The server is NOT required to be shut down.
2. Run BackUpOnlineRepositories.bat or BackUpOnlineRepositories.sh on Windows or Linux respectively.

4. Restore

The following steps will restore the repository from a backup:

1. Shut down the server by stopping the "MapGuide Server" service on Windows or the daemon on Linux.

2. Run `RestoreRepositories.bat` or `RestoreRepositories.sh` on Windows or Linux respectively.

Alternatively, you can manually remove all the files (except the “DataFiles” sub folder if it exists) under the “Library”, “Site”, and “Session” directories (located at “C:\Program Files\MapGuideOpenSource\Server\Repositories” on Windows, or “/usr/local/mapguideopensource/server/Repositories” on Linux), then copy all of the files from the backup location to those directories mentioned above.

3. Restart the server service on Windows or the daemon on Linux.

5. Recover

The repository could become corrupted due to any one of the following:

- Power failure
- Hardware failure
- Software failure
- Concurrent access to the repository by two or more applications

If the MapGuide server detects that the repository has become corrupt, it will throw an exception and log the appropriate error message. The following steps should be followed in order to recover the corrupted repository:

1. Ensure that the repository is not locked by any application. This may require the computer to be rebooted.
2. Restart the server. The server will automatically try to fix the repository. There is still a chance that a recovery may fail if any of the repository files have been deleted or are too badly damaged.

6. File Locations

After installing the server, by default, all the scripts and sample batch files are located:

“C:\Program Files\MapGuideOpenSource\Server\RepositoryAdmin” on Windows, or
“/usr/local/mapguideopensource/server/RepositoryAdmin” on Linux.

And all the supporting libraries are located:

“C:\Program Files\MapGuideOpenSource\Server\Bin” on Windows, or
“/usr/local/mapguideopensource/server/bin” on Linux.