



FirstSpirit™

Unlock Your Content

FirstSpirit™ EnterpriseBackup FirstSpirit™ Version 5.2

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1 Introduction

With its project export/import function, FirstSpirit™ has a reliable, well tried and tested process with which projects can be backed up and restored, completely, consistently and during while the system is in operation. A complete data backup of the whole project at short intervals (e.g. daily) is often no longer possible due to the data volume and the backup time available, especially in extensive FirstSpirit™ projects.

The FirstSpirit™ "EnterpriseBackup" module therefore enables more differentiated and more efficient data backup strategies. These are especially tailored to the requirements of extensive projects. In order to keep the storage space required as small as possible, the "EnterpriseBackup" no longer provides for complete backup of all data with each data backup run, but instead a complete backup of the whole project is only created once. From this point, only the changes to the project are then backed up. If necessary, a complete backup can then be created from the initial backup file and the files with the respective changes. In addition, the configuration of the FirstSpirit™ server can also be backed up.

The EnterpriseBackup module provides the following methods ("backup types") for this:

- **Snapshot backup:** Complete project export containing the data of all objects in the current and the last released version
- **Differential backup:** Partial project export which only contains the changes in relation to a snapshot
- **Incremental backup:** Partial project export which contains the changes in relation to a differential or incremental backup

Regular performance of the data backup is configured using Schedule Management. The required backup types are then performed at the defined times, for example, snapshot backups weekly, incremental backups every 4 hours and differential backups daily – depending on how intensive work on the FirstSpirit™ project is and how fast the data changes or new data is added.

If necessary, e.g. in the event of data loss, the backup files created using the EnterpriseBackup module can be imported back into the system and therefore restore old project statuses (project revisions). Backup files which are no longer required can be deleted in the long-term, in order to re-release storage space.





Important information about conditions and restrictions concerning restoration see also Chapter 5.1 page 29, options "as a new project" and "in an existing project".



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1.1 Topics covered in this document

This document is aimed at the administrator user group.

Chapter 2: explains the most important *Terms and Concepts* for the creation of backups and the re-loading of data with the help of the Enterprise Backup module. For improved understanding, Chapter 2.4 contains a schematic diagram of the data backup procedure. In addition, in Chapter 2.6, the module's data backup process is compared to other data backup methods available in FirstSpirit (from page 5).

Chapter 3: This chapter describes the *Configuration Settings* necessary for the Enterprise Backup module on the server (from page 13).

Chapter 4: This chapter explains the *Data Backup* options available for projects and the complete server with the Enterprise Backup module, either using the data backup wizard or using a data backup schedule (from page 15).

Chapter 5: This chapter explains the procedure for *Restoring Project and Server Data* (from page 29).

Chapter 6: This chapter provides information on specific data backup *Scenarios* (from page 39).



2 Terms and Concepts

The data backup via the EnterpriseBackup module (also referred to as "Backup") is performed using FirstSpirit ServerManager, either as a one-off, directly via the data backup wizard (see Chapter 4.1 page 15) or regularly, automated as a schedule (see Chapter 4.2 page 22).

With each **data backup** (snapshot, incremental or differential backup, see Chapter 2.1 to 2.2 from page 6), the FirstSpirit Export function creates one or several files, the "Backup files". Backup files are stored in the directory defined as the backup path in the configuration file `fs-server.conf` (see also *FirstSpirit Documentation for Administrators*).

When creating a backup, a **tag** is set in the original project. This tag contains a unique, consecutive ID which is assigned by the system, the tag revision, date and time when the backup was created, as well as the type of backup (see also Figure 4-5). This tag is used for defining dependencies between the individual data backups.

Backed up data can be restored as and when necessary. The data backup wizard is also used for this. The **restore** process is ultimately a project import. In order to obtain a consistent project status (project revision), with all changes made to the project since the first snapshot, other, dependent incremental and/or differential backup files have to be restored in addition to the snapshot backup file. Together, these dependent individual backup files form the "full backup". The wizard automatically recognises which files are required to restore a status and imports them.



2.1 Snapshot data backup

2.1.1 Content of a snapshot backup

A snapshot data backup (or "snapshot" for short) backs up the data of all objects in a project in its current and – provided the project uses the release option – in its last released status (version). The snapshot backup file therefore contains the minimum data required for complete restoration (recovery) of a project.



A minimal version history of the objects is saved at the same time, so that changes made before the snapshot was created may no longer be traced. This means, previous versions of the objects may not be restored or displayed, and deleted objects cannot be restored either.

In addition, data from internally write-protected or external database schemata are also not included in the snapshot backup file; only data saved on the basis of internal database schemata.

Snapshot backup files cannot be completely deleted until, at the earliest, at least one more recent snapshot backup file exists.



The maximum restorable project history results from the date of the oldest available snapshot. The restorable project history reduces with each older snapshot backup file that is deleted.

2.1.2 Backup date/time and duration

A snapshot backup can be performed based on the current time. The project revision backed up in this way corresponds to the status of the project at the present time. Alternatively, a snapshot can be created on the basis of a time in the past. The project history can also be backed up by combining the incremental and differential data backup methods.

Please note in this context, that incremental and differential backups always refer to the snapshot with the highest tag revision. **Example:** If first a snapshot A is made of the current date/time (see Chapter 4.1.1 from page 15, entry "Snapshot (current date/time)") and then a snapshot B of a point in time in the past (see 4.1.1 from page 15, entry "Snapshot (selectable date/time)"), the



following incremental and differential backups refer to snapshot A, because this has got a higher tag revision. Snapshot A could be represented by the data backup with the ID 67 in the following Figure 2-1, snapshot B could be represented by the data backup with the ID 68. The incremental data backup with the ID 69 would then refer to the snapshot with the ID 67, because this has got a higher revision number than the snapshot with the ID 68:

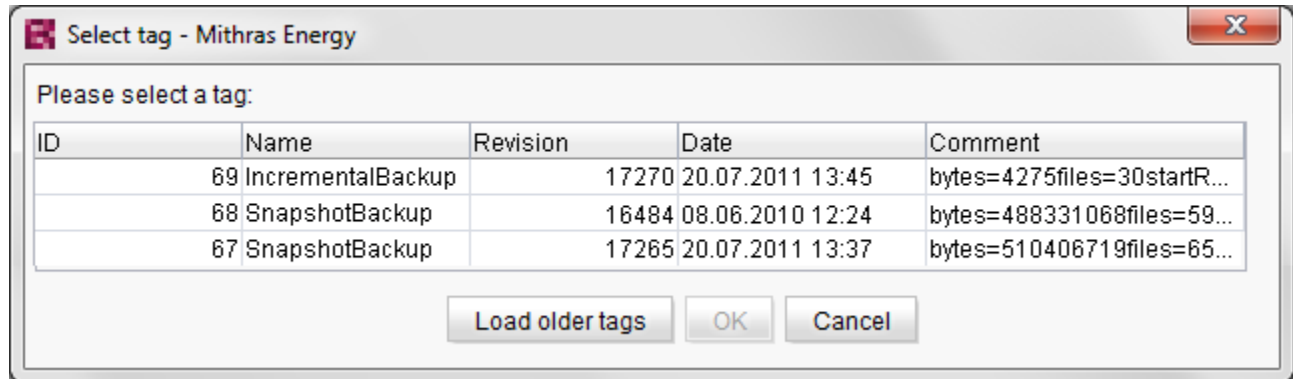


Figure 2-1: Tag at "historical" snapshot backups

A snapshot backup must always be made initially, i.e. before an incremental or differential backup is made.

Snapshot data backups usually take a fairly long time and should therefore be made during times in which no editorial work is being carried out on the project (for example, at the weekend or at night). Alternatively, it is also possible to use a cluster server (see Chapter 4.3 page 28). Work on the project can also continue to be carried out while a snapshot is being made. The snapshot is always created on the basis of the most recent revision number of the whole repository. Changes to objects which are not saved are not included in the backup file; they cannot be taken into account until after saving in the next data backup run.

2.1.3 Restoring snapshot backup files

No other data backup files are required to restore a snapshot backup file. If the snapshot backup file only is restored, the resulting project contains only a minimal version history, namely that part of version history which is needed for the correct functioning of the project in the selected version. To restore the project including the change history created since the time of the snapshot, incremental and/or differential backups must also have been made (see Chapter 2.2 page 8 and Chapter 2.3 page 9).





Important information about conditions and restrictions concerning restoration see also Chapter 5.1 page 29, options "as a new project" and "in an existing project".

2.2 Differential backup

2.2.1 Content of a differential backup

Differential backups (or "difference backups") contain all changes made to the project since the last snapshot backup with the highest tag revision (see Chapter 2 page 5, keyword "Tag"). Specifically, that is all changes (including project history and deleted objects), which lie between the project revision of this snapshot and the project's current revision. In most cases, differential backup files are therefore larger than incremental backup files. By creating a differential backup, all incremental backups made between the last snapshot with the highest tag revision and the current differential backup become superfluous.

Differential backup files cannot be completely deleted until, at the earliest, at least one snapshot backup file with a higher tag revision exists. To restore the respective project history, for each available snapshot backup file, the most recent differential backup file created since then must at least also be available.

2.2.2 Backup date/time and duration

A differential backup is generally more extensive than an incremental backup and should therefore be made outside the core editorial working hours.

2.2.3 Restoring differential backups

The preceding snapshot backup is always required to restore a differential backup. This dependent snapshot backup is automatically determined by the data backup wizard and it automatically restores it with the differential backup (see Chapter 5 page 29).



2.3 Incremental backup

2.3.1 Content of an incremental backup

Incremental backup files (or "increment backups"), analogous to the differential backup, back up all changes to the project made since the last data backup (independent of the backup type). The starting point for the data backup is therefore always the revision of the last data backup.

Incremental backup files cannot be completely deleted until, at the earliest, at least one more recent snapshot backup file or one more recent differential backup file exists. To restore the respective project history, for each available snapshot backup file, all incremental backup file created since then must also be available.

2.3.2 Backup date/time and duration

An incremental backup should be made regularly during the editorial work on the project. In the event of data loss, all changes made to the project since the last incremental project are lost and have to be entered again.

2.3.3 Restoring incremental backups

The preceding incremental or differential backup is always required to restore an incremental backup. These dependent backups are automatically determined by the data backup wizard and it automatically restores them with the incremental backup (see Chapter 5 page 29).



2.4 Schematic diagram

2.4.1 Data backup and deletion dates/times

Data backup and date for deleting

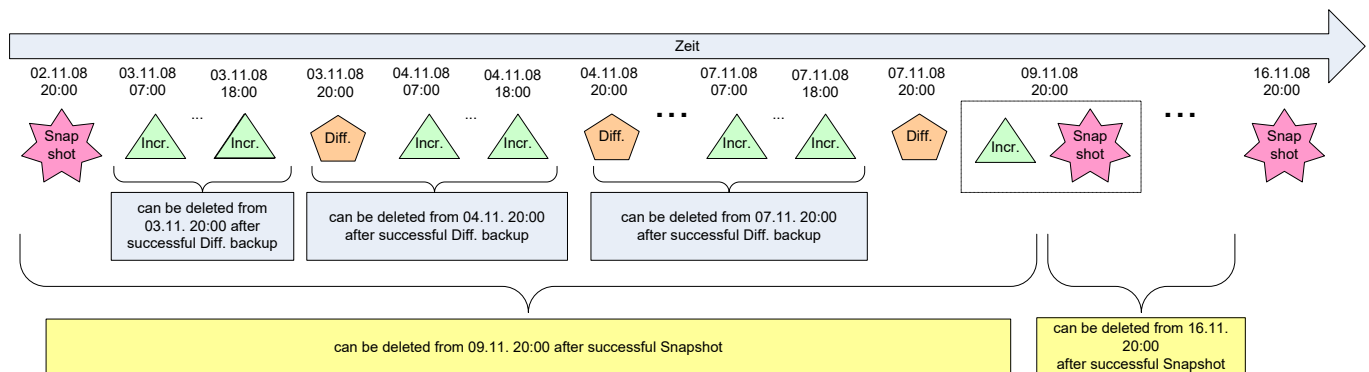


Figure 2-2: Data backup diagram and earliest possible deletion dates/times

In the example shown, weekly snapshot backups are made from 02.11.08 at 20.00 h, two incremental backups are made daily (at 07.00 h and at 18.00 h) and a differential backup is made daily at 20.00 h. With each snapshot (e.g. on 09.11.08), an incremental backup is automatically made first, if changes have been made between the snapshot and the last data backup, in order to back up the project history of these changes too.

Incremental and differential backup files can always be deleted if at least one more recent differential or snapshot backup file exists. Snapshot backup files can be deleted if at least one more recent snapshot backup file exists. For example, if the snapshot backup of 02.11.08 is deleted after the successful snapshot backup on 09.11.08, all other data backup files made between 02.11.08 and 09.11.08 can also be deleted. However, with each deleted backup file, less project history can be restored at a later date.



2.4.2 Restoring data

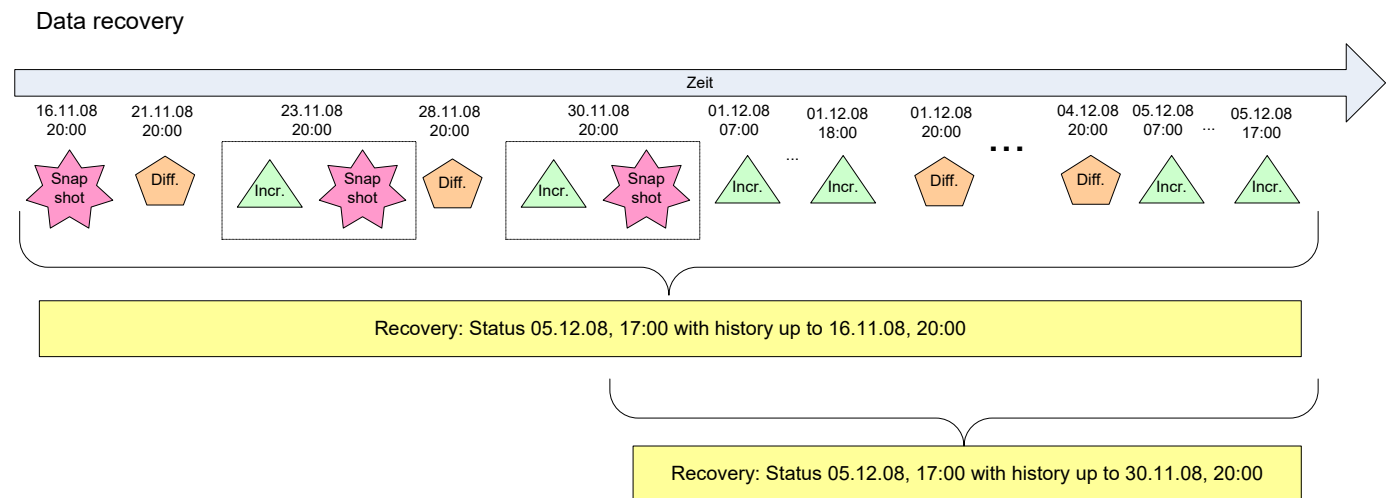


Figure 2-3: Diagram: Restoring data with different histories

Figure 2-3 shows an example of the restoration of a project with histories which extend back by different dates. More backup files have to be kept to restore the project with a longer project history (top example) than for the project with a shorter project history (bottom example).



Important information about conditions and restrictions concerning restoration see also Chapter 5.1 page 29, options "as a new project" and "in an existing project".

2.5 Server data backup

A server data backup contains all data located on the FirstSpirit server and not saved in projects, e.g. server configuration data, registered user data, installed modules data, etc. In addition, the server data backup also contains a file in which all projects on the server are listed. This file can then be used to subsequently restore the whole server with all projects.

Specifically, the server data is stored in a ZIP file and, like the project backup files, is stored in the directory defined as the backup path in the configuration file `fs-server.conf` (see also *FirstSpirit Documentation for Administrators*).



2.6 Differentiation from other FirstSpirit data backup methods

Export / project backup: The standard version of FirstSpirit supplied already includes an option for exporting and re-importing complete projects. The project export can be automated using Schedule Management (action: "Perform project backup"). Therefore, in this way, simple data backup strategies can be realised. In an export, a complete backup of the current project revision is always made, including a history whose scope can be individually selected. The backup can therefore take a long time and a large amount of storage space, especially for extensive projects, and in this case is not suitable for regular data backup.

Archiving: The FirstSpirit archiving function is used to reduce the scope of large projects. To this end, data which is no longer required is swapped out from a project and stored in archive files. This data can be re-installed if and when necessary at a later date, or finally deleted if it is no longer required. In this way, storage space on the hard disk can be finally released, loading times are reduced and the performance of the FirstSpirit server is increased.



3 Configuration

The FirstSpirit "EnterpriseBackup" module is a licensable function. If the module is licensed,

- the menu entry "Enterprise backup" appears in the "Extras" menu in ServerManager,
- the following dialog appears if a new schedule is added in Schedule Management (see Chapter 4.2.1 page 22):

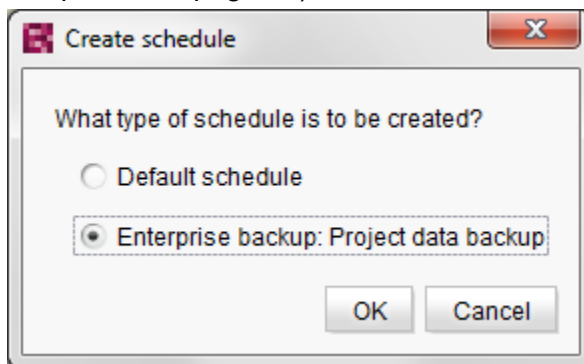


Figure 3-1: "Create schedule" dialog with licensed Enterprise Backup module

- when an action is added to a schedule (see Chapter 4.2.2 page 27), the activity "Enterprise Backup: Project data backup" is also displayed.

Use the "FirstSpirit – Configuration – License" menu of the FirstSpirit Server Monitoring to display the valid FirstSpirit functions of the `fs-license.conf` license file. For use of the EnterpriseBackup, the `license.ENTERPRISE_BACKUP` parameter must be set to the value `1` (see Figure 3-2).

A valid license can be requested from the manufacturer and is added via the "FirstSpirit – Configuration – License" menu in the blue window area of FirstSpirit Server Monitoring. The new license file can be saved by clicking the **Save** button.



Manipulating the `fs_license.conf` results in an invalid license. If changes become necessary, please contact the manufacturer.

When adding a new `fs_license.conf` configuration file, it is not necessary to restart the server. The file is automatically updated on the server.



License

```
license.ID=  
#FIRSTspirit license  
#Thu Jan 02 14:46:16 CET 2014  
license.USER=e-spirit  
license.EXPDATE=20.07.2014  
license.MAXPROJECTS=0  
license.MAXSESSIONS=0  
license.MAXUSER=0  
license.SOCKET_PORT=0  
license.VERSION=5  
license.MODULES=personalisation, sea  
license.WEBEDIT=1  
license.WORKFLOW=1  
license.REMOTEPROJECT=1  
license.PACKAGEPOOL=1  
license.DOCUMENTGROUP=1  
license.ACCESS_API=1  
license.APPTAB_SLOTS=20  
license.ARCHIVE=0  
license.CLUSTERING=1  
license.ENTERPRISE_BACKUP=1  
license.HIGHAVAILABILITY=1  
license.OFFICE_IMPORT=1  
license.OFFICE_INTEGRATION=1  
license.SCOPE=CORPORATE  
license.TYPE=PRODUCTION
```

Figure 3-2: Display of the license file parameters (Server Monitoring)



4 Making a Data Backup

4.1 Using the data backup wizard

The data backup wizard enables a data backup to be directly performed for a project or for the whole server. To do this, the "Enterprise Backup" menu item in the "Extras" menu is opened in ServerManager.



This function is available to server administrators only.

4.1.1 Project data backup

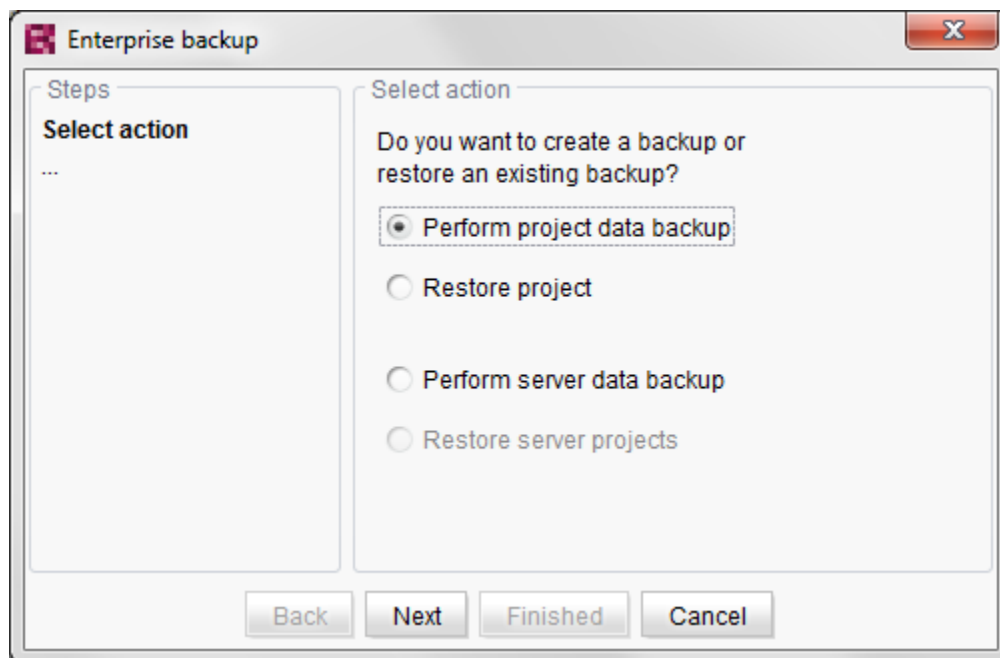


Figure 4-1: Data backup wizard – Select action

In this dialog it is possible to select whether the data of a project or of the whole FirstSpirit server is to be backed up or restored.



Perform project data backup: If this option is *selected*, a data backup is made for a project, which can be selected later in the procedure.

Restore project: If this option is *selected*, existing backup files created using the Enterprise Backup module are imported back into FirstSpirit (see Chapter 5 page 29).

Perform server data backup: If this option is *selected*, a data backup is made of the server (see Chapter 4.1.2 page 20).

Restore server projects: If this option is *selected*, the server's configuration is restored (see Chapter 5.2 page 36).

The "Perform project data backup" option must be selected to back up the data of a project. Click "Next" to open the following window:

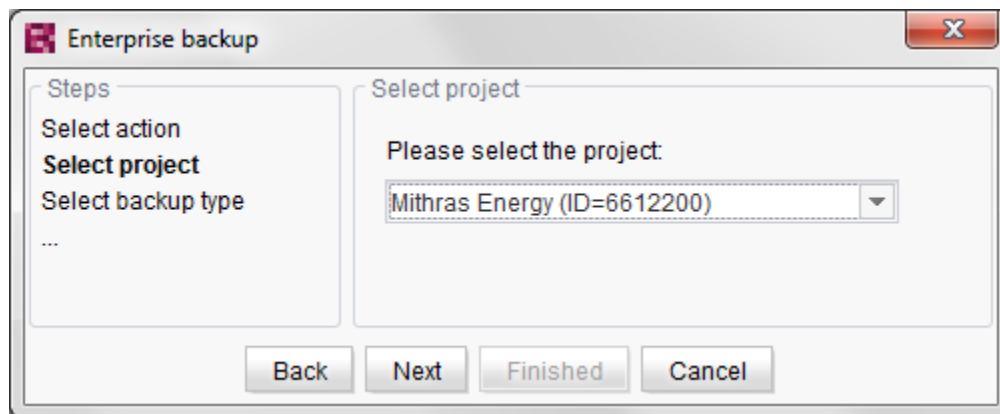


Figure 4-2: Data backup wizard – Select project

The project whose data is to be backed up can be selected from this drop-down list, which contains all the projects available on the server.

Click "Next" to open the following window:

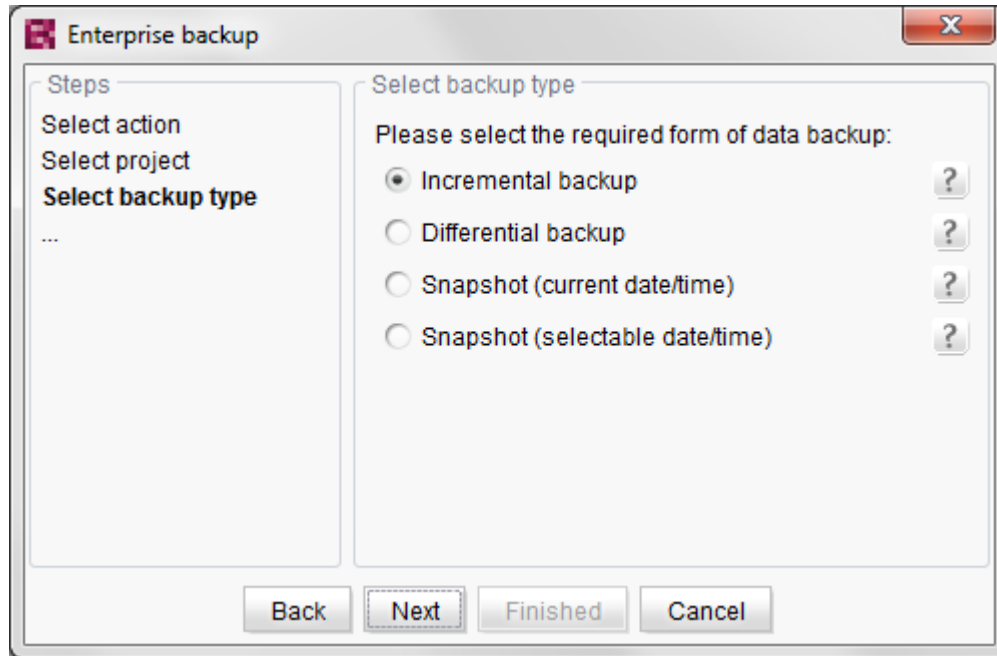


Figure 4-3: Data backup wizard – Select backup type

The required backup type can be selected in this window.

Incremental backup: If this option is *enabled*, an incremental data backup is performed. It contains all changes (including the project history and deleted objects) made since the last data backup (snapshot, differential or incremental backup) with the highest tag revision (see Chapter 2 page 5, keyword "tag" and Chapter 2.1.2, Figure 2-1). At least one previously performed snapshot backup is required to create an incremental backup. In addition, changes must have been made to the project since the last data backup. If not, a backup file is not created in the last step and the following error message is issued: "Enterprise backup failed! No backup necessary, revision 14303 (SnapshotBackup) is latest".

Differential backup: If this option is *enabled*, a differential data backup is performed. It contains all changes (including project history and deleted objects) made since the last snapshot backup with the highest tag revision (see Chapter 2 page 5, keyword "tag" and Chapter 2.1.2, Figure 2-1), and therefore also includes changes already saved in incremental backups, performed between this snapshot and the current differential backup. At least one previously performed snapshot backup is required to create a differential backup. In addition, changes must have been made to the project since the last data backup. If not, a backup file is not created in the last step and the following error message is issued: "Enterprise backup failed! No backup necessary, revision 14303 (SnapshotBackup) is latest".



Snapshot (current date/time): If this option is *enabled*, a snapshot backup of the current project revision is performed. It contains the data of all the project's objects in the current and – provided the project uses the release option – in the last released status; however, it includes only a minimal, necessary project history. The resulting backup file forms the reference point for all further data backup actions for the project concerned.

Snapshot (selectable date/time): If this option is *enabled*, a snapshot backup is also performed. However, unlike the "Snapshot (current time)" option, the project revision on a selectable date in the past is backed up. This function can be used to generate a historic project revision. In addition, in conjunction with a differential backup, the project history between the time of the snapshot and the current time can be backed up. Please notice that incremental and differential backups always refer to the snapshot with the highest tag revision (see Chapter 2.1.2, Figure 2-1).

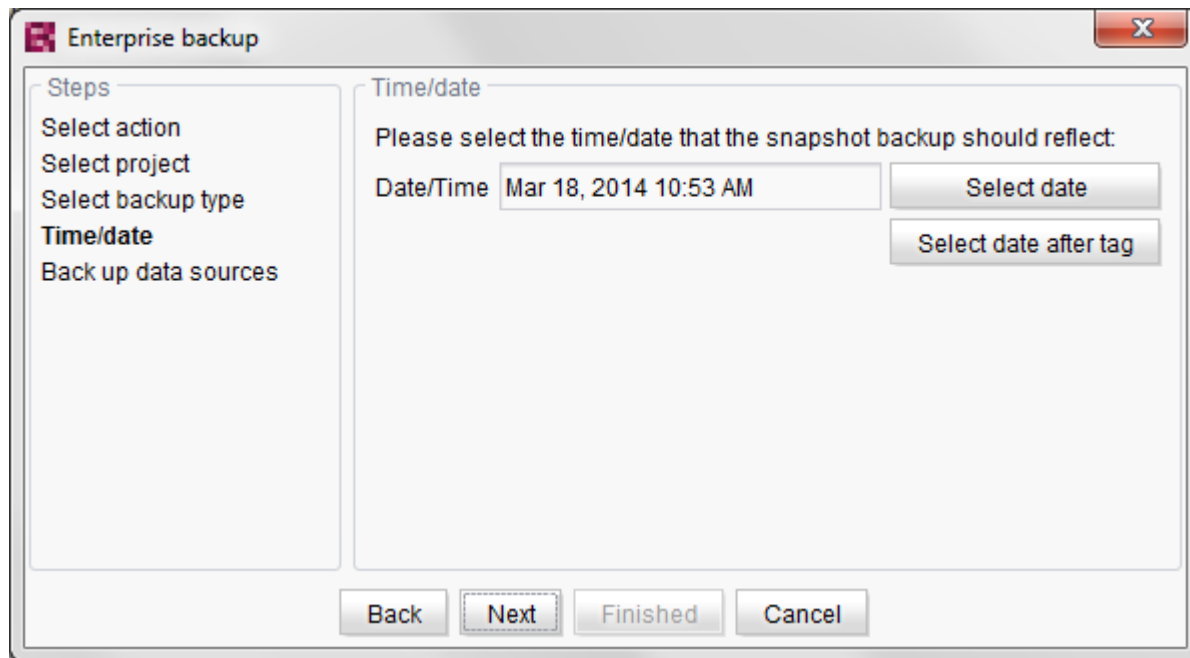


Figure 4-4: Data backup wizard – Select date/time for snapshot backup

Time/Date: The current date and the current time ("now") are displayed in this field. If this time is accepted with "Next", a snapshot of this time/date is made.

Select date: This button can be used to select the data and time from a calendar view. When the calendar view is closed, the selected date and time is copied into the "Time/Date" field.

Select date after tag: This button can be used to select the project revision to be backed up, based on specific project events in the past, so-called "Tags" or "Labels". These include, for example, any type of data backup (see also Chapter 2 page 5, keyword "tag"). Click this button



to open the following window:

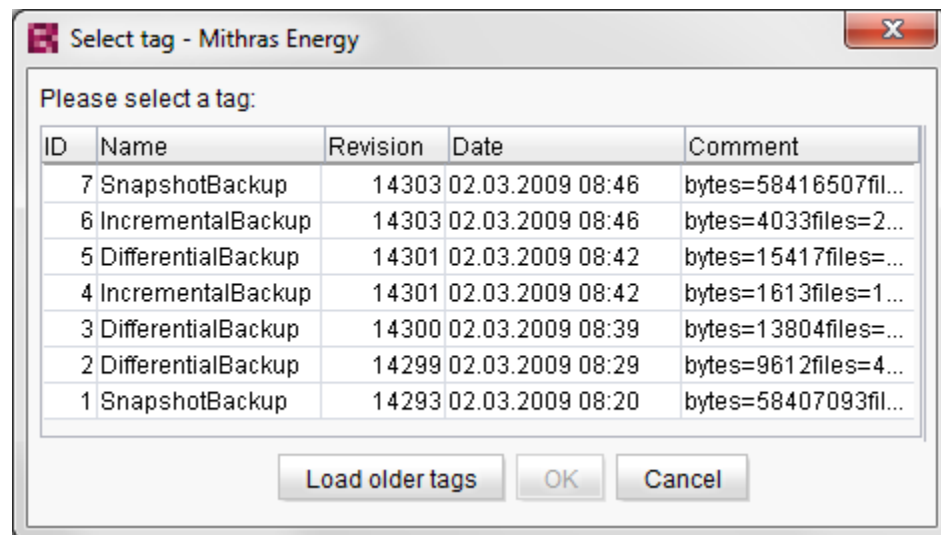


Figure 4-5: Data backup wizard – Select tag

This list displays all the available tags for the selected project with ID, type of tag ("Name" column), revision, date and comments added by the system. If several tags exist for a date or a revision, no changes were made to the project between these tags and the project revision is therefore identical. The list can be resorted by clicking on any column heading. If no tags are available, this list is empty.

Load older tags: Click this button to load older tags for the project.

If the required backup type and time for the data backup have been selected, click "Next" and the following window opens:

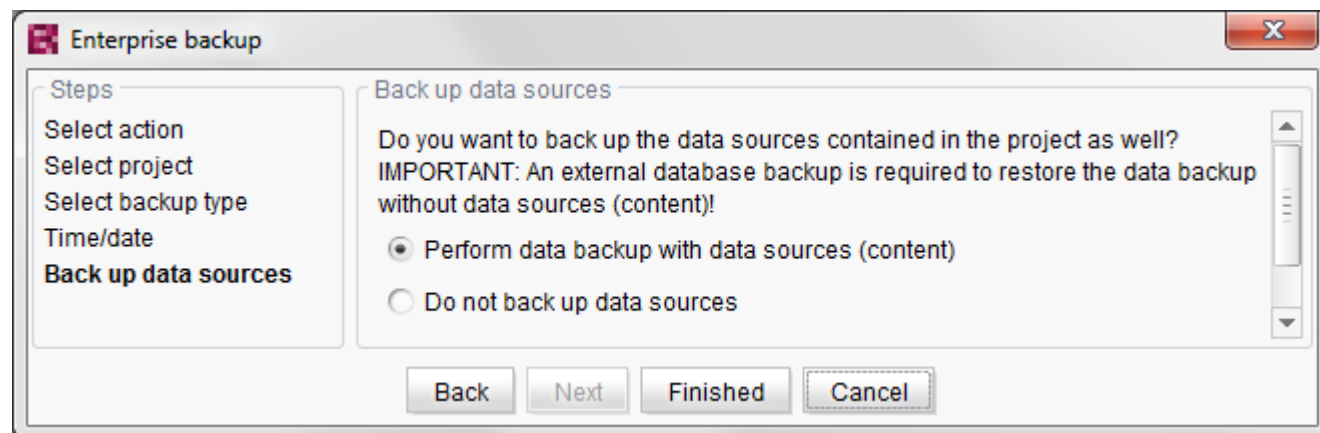


Figure 4-6: Data backup wizard – Backup data sources



In this window it is possible to select whether the data sources contained in the project are to be backed up too.

Perform data backup with data sources: If this option is *enabled*, the data contained in the project's data sources is saved in the backup file. This option should be used if data from the data sources has not already been backed up by other backup methods, performed outside of FirstSpirit.



*Backups with database contents can be restored later only into existing projects with the **same** database layer. It cannot be guaranteed that the restoration into different layers works correctly. In this case an error message will be logged while the restoration (see also Figure 5-10), for example*

```
Error: Incompatible layer class:  
de.espirit.or.impl.mysql.MySQLLayer !=  
de.espirit.or.impl.mssql.MSSQL2005Layer
```

Do not back up data sources: If this option is *enabled*, the data contained in the project's data sources is not saved in the backup file. This option should be used if data from the data sources has already been backed up by another backup method.

Click "Finished" to create the export file for the selected project.

4.1.2 Server data backup

To back up the configuration data of the FirstSpirit server, the "Perform server data backup" option must be selected in the dialog in Figure 4-1. This backup does not contain any project data. A renewed server data backup can be performed with each change to the configuration.

Click "Next" to open the following window:



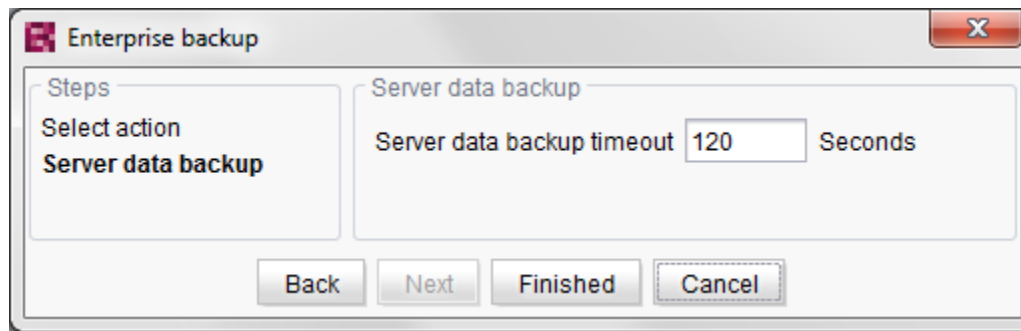


Figure 4-7: Data backup wizard – Server data backup

Timeout: Various server components may have to prepare for the server backup process. If they are unable to complete these preparatory steps within the time specified (in seconds), no server backup is performed and an exception is logged. In this case, the timeout value should be increased and the server backup initiated again.



It is advisable to perform a server data backup when no users are working with FirstSpirit and no schedules are running.

Click "Finished" and the server data backup starts:

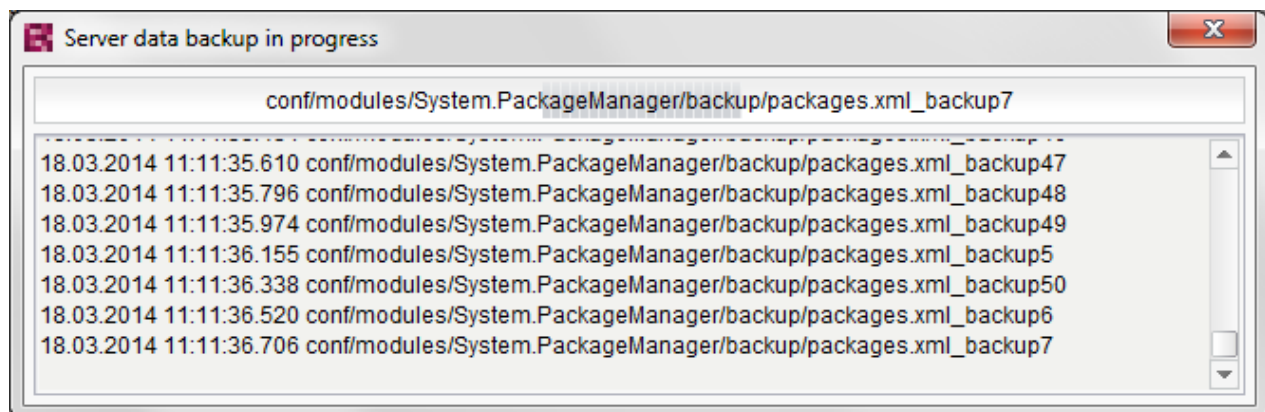


Figure 4-8: Data backup wizard – Server data backup

The data, including the file structure, is saved in a ZIP file which is placed in the directory defined as the backup path in the configuration file `fs-server.conf`. After the server data backup has been successfully completed, a corresponding message appears: "Server data backup finished".



4.2 Using the data backup wizard

To ensure regular data backups are performed, appropriate schedules can be created for the required project in Schedule Management. To do this, in Project Properties, press the **Add** button in the "Schedule Management" menu item:

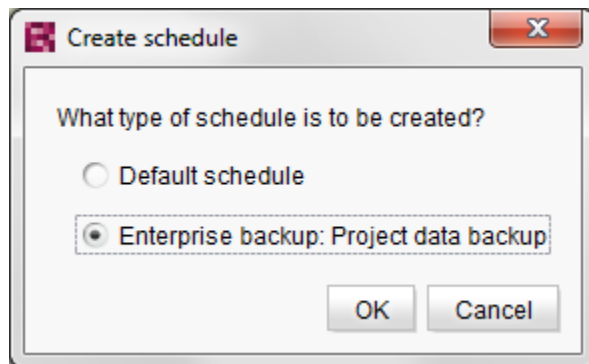


Figure 4-9: Create data backup schedule



Data backup schedules can be created and performed by server and project administrators. For further information on creating and managing schedules, see FirstSpirit Manual for Administrators.

4.2.1 Create data backup schedule using the wizard

The schedule wizard enables global configuration of a project's data backup. It can be used to set the start time and interval for creation of the different data backup types (snapshot, incremental and differential backup) in one step. After the global schedule has been configured, a separate schedule is created in Schedule Management for each data backup type. If necessary, the individual schedules can be subsequently edited here.



After selecting the "Enterprise backup: Project data backup" option in the dialog in Figure 4-9 and clicking "OK", the following window opens:

Enterprise backup: Project data backup

Schedule name

Snapshot

First executed on Mar 18, 2014 at 11:44 AM

Execute all 4 Weeks

Incremental backup

First executed on Mar 18, 2014 at 1:44 PM

Execute all 4 Hours

Differential backup

First executed on Mar 18, 2014 at 3:44 PM

Execute all 2 Days

Clustering

☐ Perform on Cluster node

Cluster nodes

Database contents

☒ include

☐ Do NOT include (requires separate backup)

E-mail message

☒ always

☐ in case of errors

e-mail address

OK Cancel


Figure 4-10: Data backup schedule – Project data backup

Schedule name: The name of the schedule displayed in the schedule overview and in Schedule Management. This name is used for all three schedules created. The respective backup type is automatically added in brackets for better differentiation (see Figure 4-11).





For detailed information on the individual backup types, see Chapter 2 page 5 and Chapter 4.1.1 page 15.

First executed on / at: Here the calendar symbol is used to select on which date and at which time the respective backup is to be performed for the first time. A suitable time must be selected for each type (see also the Online Help texts, which can be opened using the  symbol and the recommendations in Chapter 6 page 39). As a default, the current date/time at which the schedule is created is set for snapshot backups, the current time plus 2 hours is set for differential backups and the current time plus 4 hours is set for incremental backups.



The schedules for the individual backup types cannot all begin at the same time. Therefore, different times must be given for each backup type.

Execute all ... weeks / days / hours: The respective drop-down list can be used to define an interval for each backup type, starting from the previously defined initial backup date. As a default, the interval set for snapshot backups is 4 weeks, for differential backups it is 2 days and for incremental backups it is 4 hours. If other intervals as those selectable via the drop-down lists be required, they can be individually set later, as and when required, using the schedule properties (see Chapter 4.2.2 page 27 and *FirstSpirit Manual for Administrators*).

Clustering: If the clustering function is enabled for the project (see *FirstSpirit Documentation for Administrators*, "Clustering" chapter), the project backup schedule configured here can be swapped out to a FirstSpirit cluster server. To do this, the "Perform on Cluster node" checkbox must be selected and the name of the slave server, defined in the "Slave-Server Name" field ("Clustering" menu entry), must be entered in the "Cluster Node" field (see also Chapter 4.3 page 28). The field can also be left empty. In this case, the cluster node with the lowest load is used.



A valid license is required for use of the clustering function.



Database contents: If the "include" option is *enabled*, database contents entered in FirstSpirit SiteArchitect in the Content Store are also backed up with the project backup schedule. This option is preset as a default. If the "Do NOT include (requires separate backup)" option is *enabled*, the database contents are not backed up. In this case the database contents should be backed up using other backup methods.



*Backups with database contents can be restored later only into existing projects with the **same** database layer. It cannot be guaranteed that the restoration into different layers works correctly. In this case an error message will be logged while the restoration (see also Figure 5-10), for example*

```
Error: Incompatible layer class:  
de.espirit.or.impl.mysql.MySQLLayer !=  
de.espirit.or.impl.mssql.MSSQL2005Layer
```

E-mail message: In this area, one or several e-mail addresses can be given, to which an e-mail is either always ("always" option) sent after the schedule has been implemented or only in case of errors ("in case of errors" option). Several e-mail addresses can be indicated separated by semicolons. This "always" option is set as a default.

- If the schedule is **successfully performed**, an e-mail with the subject "Finished project backup" and the name and ID of the project is sent to the given e-mail address. The e-mail also contains the name(s) of the backup file(s) placed in the backup directory.
- If the schedule was **not performed**, for example, because a backup is not necessary, an e-mail with the subject "Project backup was not performed" and the name, the ID of the project and the reason why the schedule was not performed is sent to the given e-mail address.
- In the **event of errors**, an e-mail with the subject "Project backup failed" and the name, ID of the project and error message is sent to the given e-mail address.



After pressing the "OK" button, the Schedule Management is displayed with the new schedules created. In the following figure the additions of the individual types are marked:

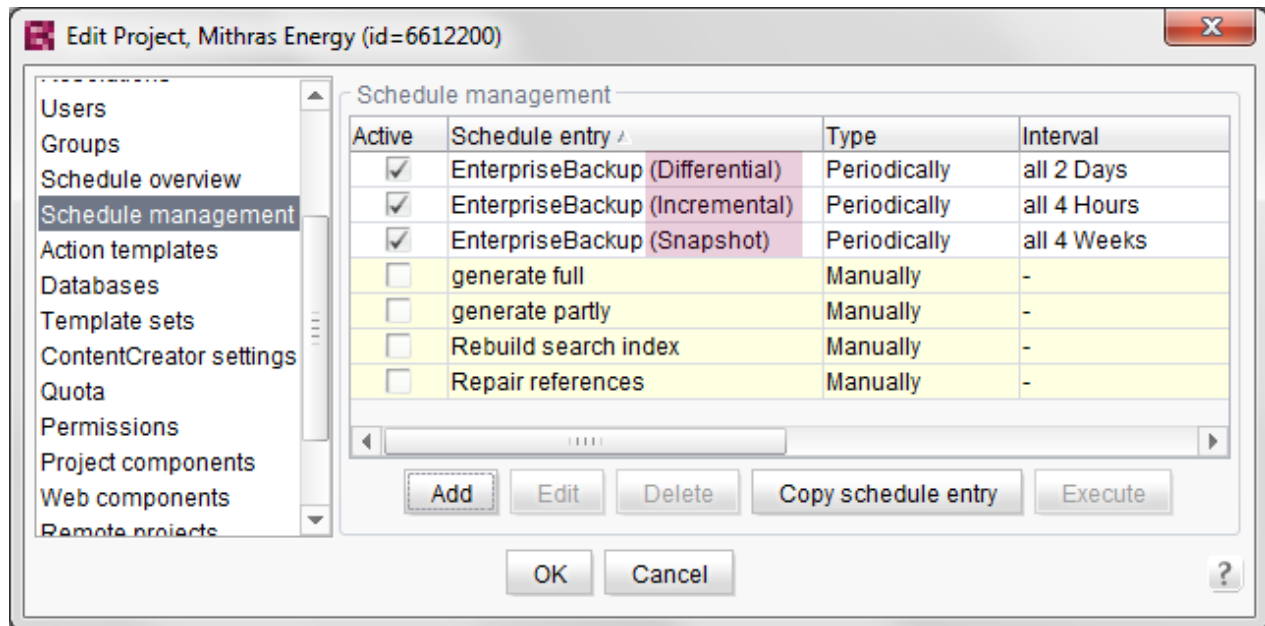


Figure 4-11: Schedule Management – Data backup schedules

If necessary, each data backup schedule can be individually edited by clicking "Edit" or by double-clicking the respective schedule or can be deleted by clicking "Delete". A schedule is edited as described in the following Chapter 4.2.2.



4.2.2 Create individual data backup actions

To create an action for a data backup type which can be performed in a schedule individually or in combination with other actions, the "Standard Schedule" is selected in the dialog in Figure 4-9. The "Schedule Entry Planning: Edit Schedule" dialog window opens, in which the schedule properties can be edited (see *FirstSpirit Manual for Administrators*). After pressing the button in the "Actions" tab, the "Schedule Planning: New Activity" window opens, from which the "Enterprise Backup: Project data backup" activity is selected. The following window opens:

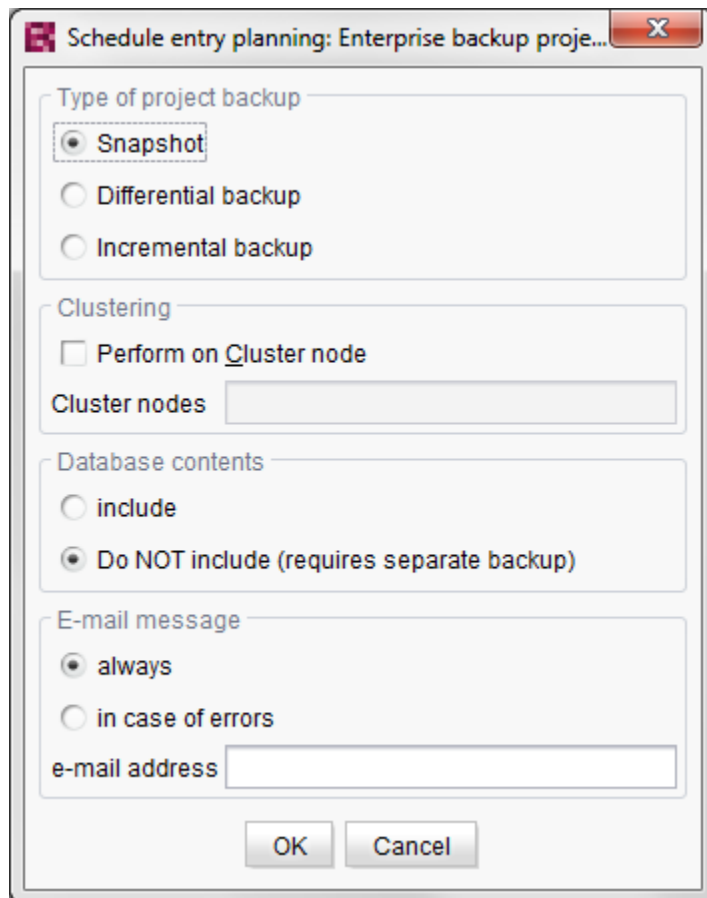


Figure 4-12: Data backup schedule – Enterprise Backup project data backup

Type of project backup: The respective data backup type can be selected here.





For detailed information on the individual backup types, see Chapter 2 page 5 and Chapter 4.1.1 page 15.

The other configuration options correspond to those of the Schedule wizard (see Figure 4-10). The time for the first performance and the interval of data backup actions are defined in the relevant schedule (see *FirstSpirit Manual for Administrators*).

4.3 Data backup in cluster mode

If the EnterpriseBackup module is used in conjunction with the FirstSpirit cluster option, it is possible to use a FirstSpirit slave server as the backup server. This FirstSpirit server then takes charge of the backup function, thereby relieving the FirstSpirit master server of this task.

Please note that no user passwords are exported during a project backup for security reasons. If the relevant user does not yet exist on the master server, the following warning appears in the log when projects are restored:

```
04.06.2010 12:17:03.801 Warning: User \'Chief\' has empty password
```

In this case, the password must be added manually.

For more information on the clustering functionality, see the FirstSpirit Documentation for Administrators, Chapter: "Clustering".



5 Restoring Data Backups

Backups are restored using the data backup wizard. This requires that all backup files required for the restoration are still in the backup directory of the FirstSpirit server and have not been deleted. Backup files backed up, e.g. onto an external medium, must be loaded back into the backup directory first.

5.1 Restoring project data

The wizard ensures that all individual backup files (i.e. snapshot, differential and incremental backups) required to restore a required project revision are imported. This means that only the required date (or its related backup file) whose project revision is to be restored has to be selected.



*Backups with database contents can be restored later only into existing projects with the **same** database layer. It cannot be guaranteed that the restoration into different layers works correctly. In this case an error message will be logged while the restoration (see also Figure 5-10), for example*

```
Error: Incompatible layer class:  
de.espirit.or.impl.mysql.MySQLLayer !=  
de.espirit.or.impl.mssql.MSSQL2005Layer
```

To restore, the "Enterprise Backup" menu item in the "Extras" menu is opened in ServerManager.



This function is available to server administrators only.



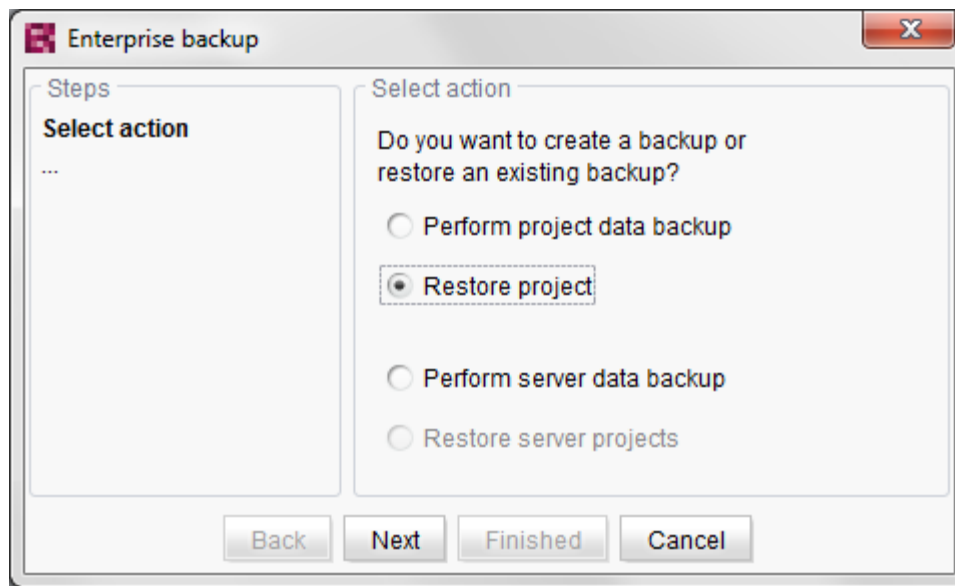


Figure 5-1: Data backup wizard – Select action

If the "Restore project" option is selected, the following window is opened by clicking "Next":

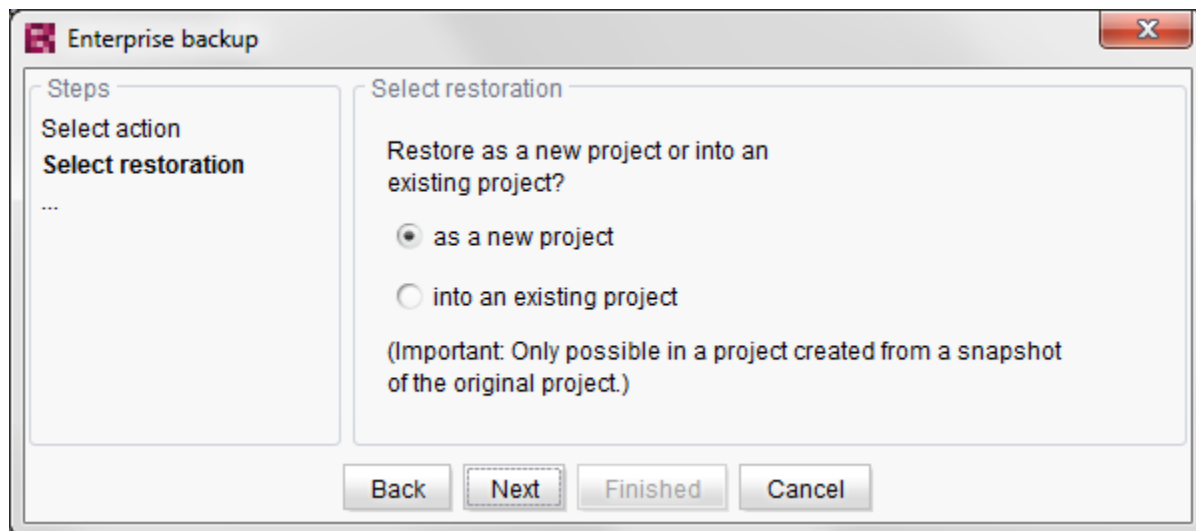


Figure 5-2: Data backup wizard – Select restore

Here it is possible to select whether the backup is to be restored in a new project or in an existing project.

as a new project: If this option is *enabled*, the data backup is created as a new project and therefore represents a copy of the project from which the data backup was made; however, only with a minimal project history which is needed for correct functioning of the project. For further information on restoring as a new project, see Chapter 5.1.1 page 31.



in an existing project: If this option is *selected*, the data backup is restored in an existing project. In the next step it is possible to select the project in which the backup is to be restored. For further information on restoring in an existing project, see Chapter 5.1.2 page 34.

5.1.1 Restoring in a new project

In order to restore a data backup in a new project, the "as a new project" option must be selected in the dialog in Figure 5-2. In the next step, a list of the projects for which the data backups were made to date is displayed:

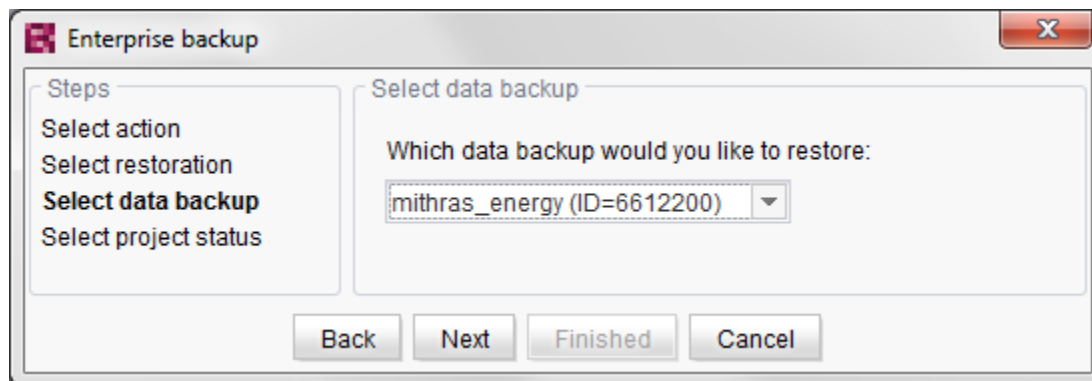


Figure 5-3: Restore data – Select data backup

The project whose data backup is to be restored is selected from this drop-down list by way of the ID.

Click "Next" to open the following window:

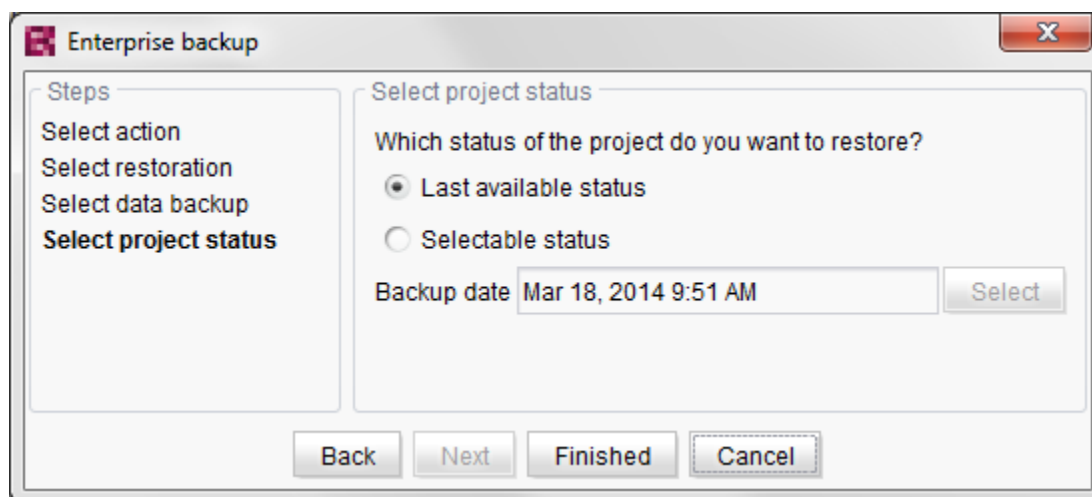


Figure 5-4: Restore data – Select project status



In this dialog it is possible to define which project status is to be restored.

Last available status: If this option is *selected*, the last available project status is restored. The date and time of the last backup to be made displayed in the "Backup date" field. In this case, the restored project contains the whole project history since the first snapshot backup (if incremental/differential backups have been created and the relevant backup files are available in the backup directory).

Selectable status: If this option is *selected*, a project status to be restored can be individually selected. After clicking "Select", a list with all available backups opens with the date, type and name of the backup file:

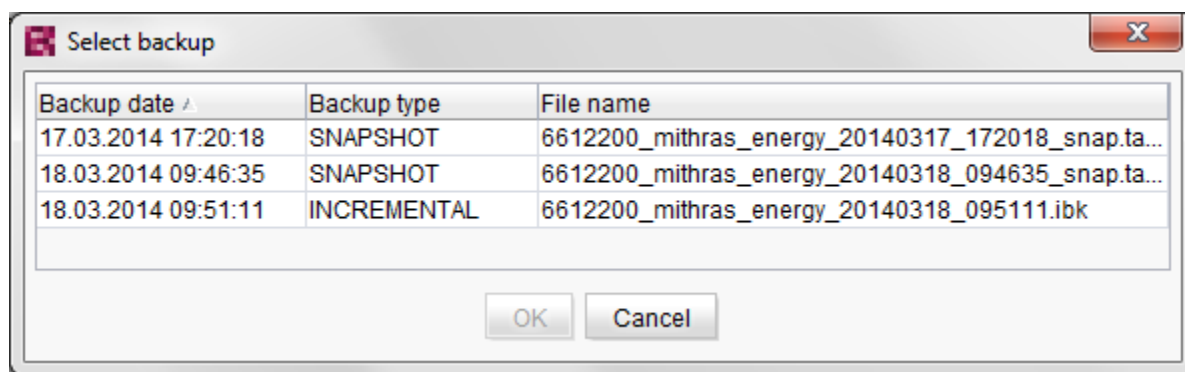


Figure 5-5: Restore data – Select backup

The date of the required project status can be selected from a list. It can be sorted by clicking on any column heading.

If a **Snapshot Backup** is selected as the project status to be restored, the restored project is set to the status of this snapshot. It contains only a minimal project history which is needed for the correct functioning of the project in the selected version.

If an **Incremental or Differential Backup** is selected as the project status to be restored, the restored project is set to the status of the oldest snapshot existing in the backup history. It contains the project history with all changes made between the backup selected here and the oldest snapshot.



If the required project status has been selected, click "Finished" and the project import dialog opens (see *FirstSpirit Documentation for Administrators*):

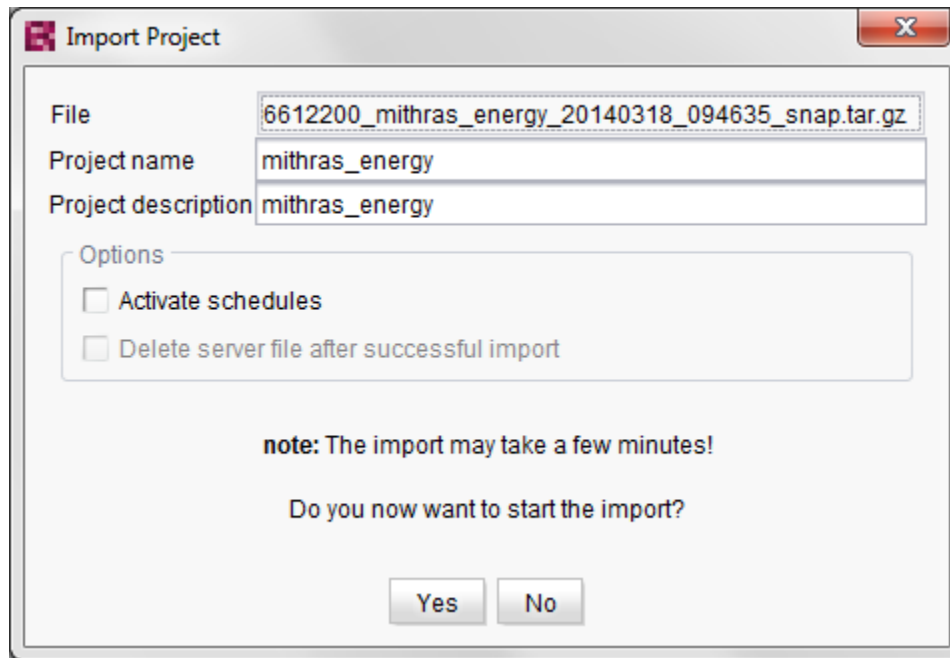


Figure 5-6: Restore data – Project import

The file to be imported is displayed in the "File" field and cannot be changed. The project name and description can be manually adjusted. The project name must be unique and cannot be selected with an identical name to the source project.

Click "Yes" and the project import starts.

For further information on project imports in FirstSpirit, see FirstSpirit Documentation for Administrators.

If available and required, the wizard imports all dependent backup files. Following successful import the project can continue to be processed or edited as usual.



5.1.2 Restoring in an existing project

The data can also be restored in an existing project, for example, to enable synchronisation of two projects.



This requires that the project in which the backup is to be restored (see Figure 5-8) and the data backup to be selected in the second step (see Figure 5-9) are based on the same project and that the project in which you want to restore the backup is not the original project but a snapshot of the original project which has been restored before with the option "as a new project" (see Chapter 5.1.1 page 31). This means, that a data backup can not be restored into an existing project if this project has not been created before by means of the function "as a new project" (see Figure 5-7).

If this is not the case, a backup file is not restored in the last step of the wizard and a correspondent error message is issued.

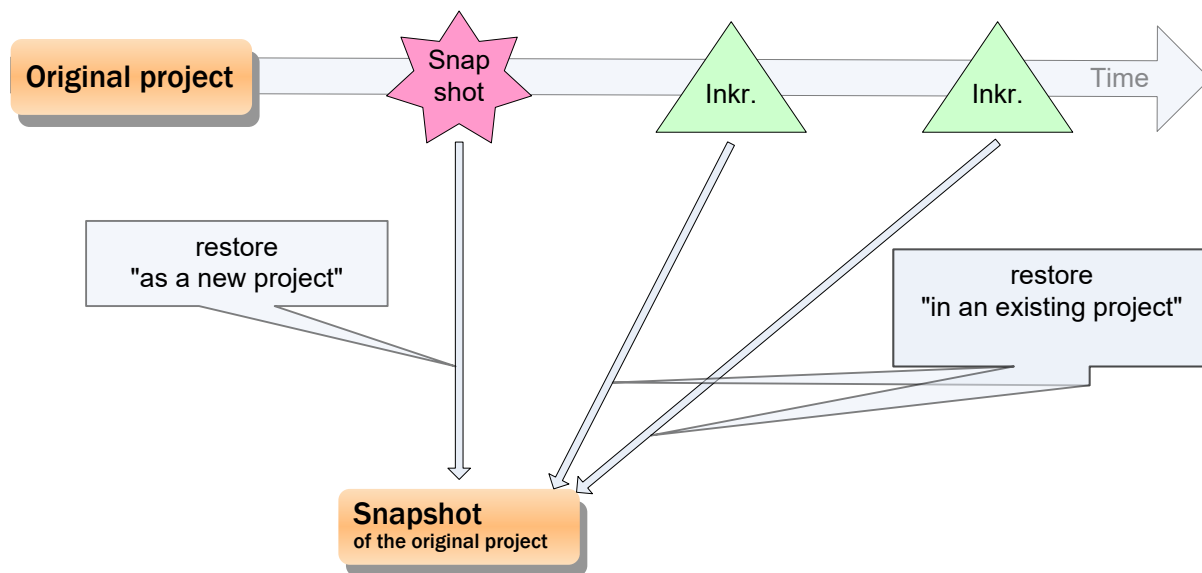


Figure 5-7: Restoration in an existing project

In order to restore a data backup in an existing project, the "in an existing project" option must be selected in the dialog in Figure 5-2. The project in which the backup is to be restored can be selected in the next step:

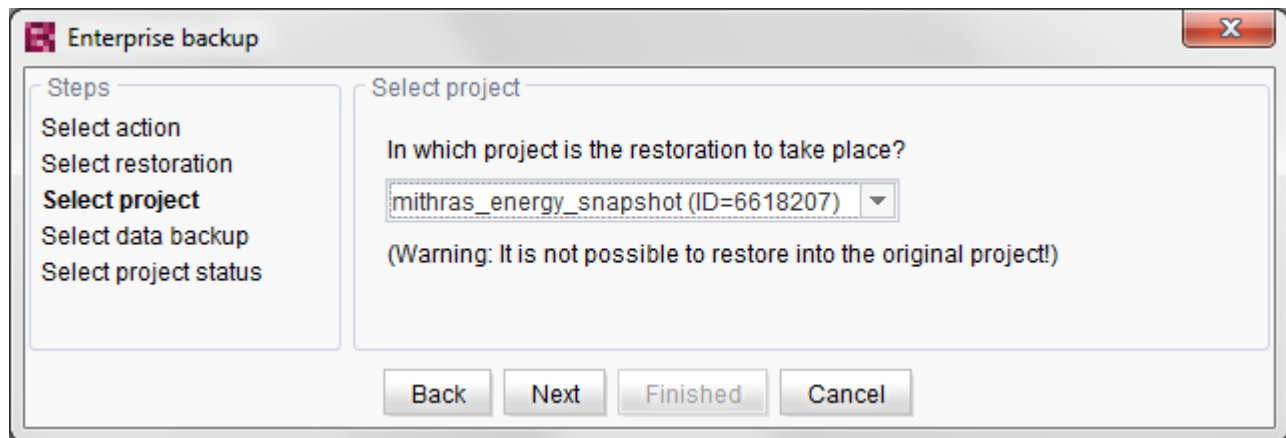


Figure 5-8: Restore data – Select project

Click "Next" to open the following window:

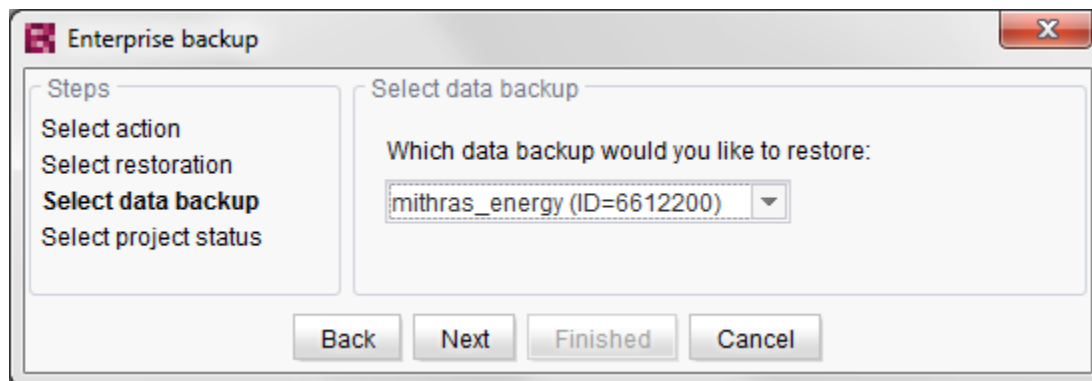


Figure 5-9: Restore data – Select data backup

The data backup to be restored is selected from this drop-down list.

In the next step, analogous to the restoration of a backup in a new project, the required project status is selected (see Chapter 5.1.1 page 31, Figure 5-4 f.).



Unlike the restoration of a backup in a new project, after the required project status has been selected, the project import dialog does not open and instead the data restoration is started directly:

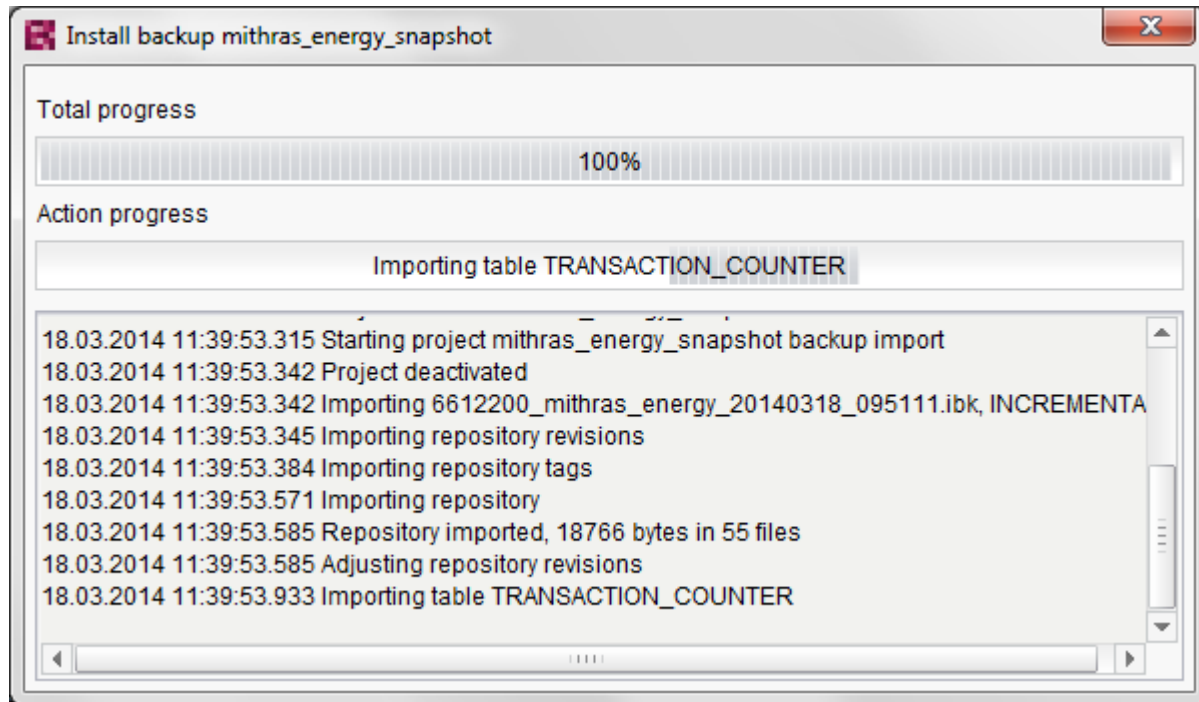


Figure 5-10: Restore data – Backup is imported

After successfully restoring the backup the following message appears: "The backup data has successfully been installed." The project with the restored data can continue to be edited or processed as usual. It is necessary to log in again first.

5.2 Restoring server data

If the FirstSpirit Server configuration has been backed up using the backup wizard (see Chapter 4.1.2, page 20), it can be restored if necessary. Because it is not backed up at the same time, the `fs-server.jar` file will also be required and so will the project data backup files (see "Perform project data backup", page 16).

When restoring the server data, the first step is to unpack the ZIP file containing the server backup to the directory where the FirstSpirit server is to be restored. Then, the project data backup files from the old FirstSpirit server must be copied into the backup directory of the new FirstSpirit server and the `fs-server.jar` file must be copied into the `~\server\lib` directory.



Once the new server has been started, the next step is to select the projects that you want to restore using the backup wizard. To do this, select the "Enterprise Backup" menu item from the "Extras" menu in ServerManager.



This function is available to server administrators only.

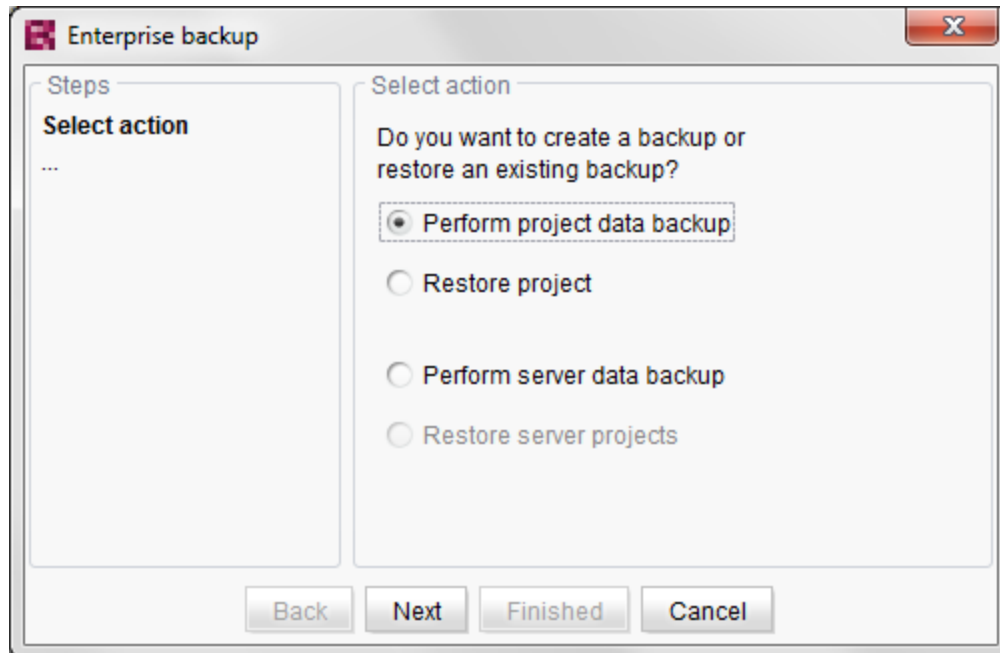


Figure 5-11: Data backup wizard – Select action

If the "Restore server projects" option is selected, the following window is opened by clicking "Next":



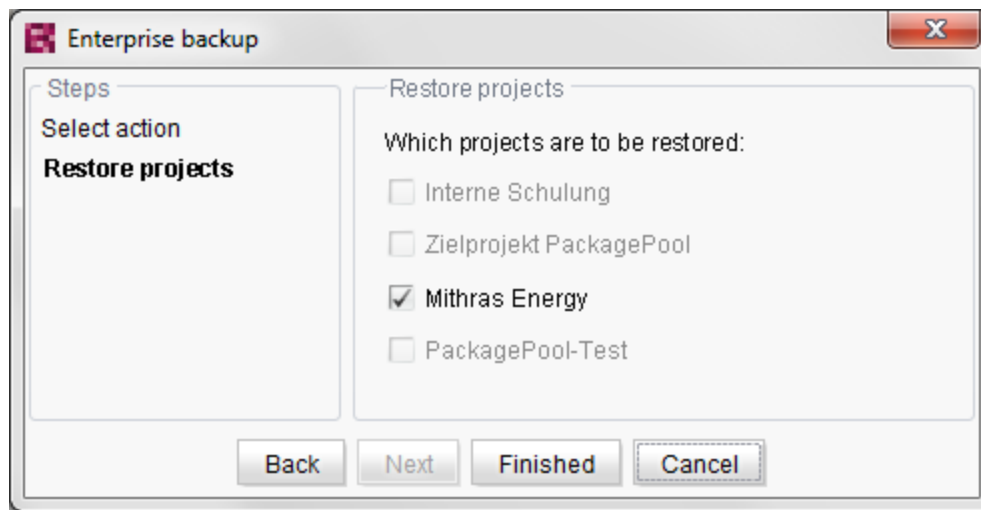


Figure 5-12: Data backup wizard – Restore server projects

This list shows all the projects which were located on the FirstSpirit server. Only the projects which can be restored, i.e. for which backups (which have been created by FirstSpirit EnterpriseBackup) exist, are active. The projects to be restored can be selected using the checkboxes.

Click "Finished" to start restoring the server projects.

6 Application Examples

6.1 Regular data backup

Initially a backup of the FirstSpirit server (see Chapter 4.1.2 page 20) and a snapshot of each project to be backed up are created – depending on the requirements and quantity of data

- of the current point in time (now) (the quantity of data is small, but changes previously made to the project cannot be undone) or
- of a time/date in the past (in conjunction with a differential backup the project history can also be backed up, so that changes previously made to the project can be traced and undone).

If, in the second case, the changes since the selected point in time are also available, a differential data backup must be performed after the snapshot. For further information on creating snapshots and differential backups, see Chapter 4.1.1 page 15.

The regular data backup following this should be realised using corresponding schedules. The times/dates and intervals are always based on the requirements of the respective project and must be selected accordingly. An example of setting up the schedules is shown in Figure 2-2. For further information on creating schedules, see Chapter 4.2 page 22.

6.2 Restoring servers and projects

If, in the event of a complete hardware failure, the configuration of the FirstSpirit™ server and all projects are to be recovered, the server must be restored first.

To do this, a new server is installed first and the ZIP file created with the server data backup is extracted in the server installation. The server projects must then be recovered (restored) using the data backup wizard (see Chapter 5.2 page 36).

If data was kept in external databases, they must also be restored for each project.

After successfully recovering the FirstSpirit content and any external database content, the editors can seamlessly continue working on the new imported projects from where they previously left off.





Depending on when the last backup was performed, it is advisable to check whether the last changes made by the editors were actually backed up and restored in the projects. Any missing changes and data must then be re-entered manually.

6.3 Reset projects

The Enterprise Backup module can also be used to undo changes made between the current point in time (now) and a point in time in the past, for example, if incorrect entries have been made. To do this, the project is reset to the status of a required date.



*Here it should be noted that **all** changes of **all** editors will be reset. The project history between the current point in time and the status to which the project is to be restored is lost.*

In general, this is done by restoring the data in a new project (see Chapter 5.1.1 page 31, Figure 5-3). The required date to which the project is to be reset is selected in Figure 5-5 as the project status.

If data was kept in external databases, these may also have to be reset to the status of the required point in time.

6.4 Reducing the project size (even while the system is in use)

Each time an action is performed in FirstSpirit, data is generated and stored in the FirstSpirit repository. This means the repository continuously grows in size and an increasing amount of hard disk space is required.

As an alternative to the FirstSpirit archiving function, the "FirstSpirit EnterpriseBackup" module can be used to reduce the project size, by either completely or partially deleting the project history.

To delete the **whole history**, a snapshot backup of the current project status is generated (see Chapter 4.1.1 page 15, Figure 4-3, "Snapshot (current time/date)" option) and this is then restored as a new project (see Chapter 5.1.1 page 31). In this way, the whole history is deleted, previously made changes cannot be reset and deleted objects cannot be restored.



If a **part of the history** is to be retained in order to be able to undo changes from a specific point in time up to the current time/date (now),

1. a snapshot backup is made of the required date (see Chapter 4.1.1 page 15, Figure 4-3, "Snapshot (selectable time/date)" option, e.g. 6 months back from the current date, to retain the project history of the past 6 months. This step can take several hours or even days, depending on the size of the project.
2. a differential backup is created (see Chapter 4.1.1 page 15, Figure 4-3, "Differential backup" option). This contains all changes between the date selected for the snapshot and the current date, and therefore it also contains the change history. This step can also take some time to complete.
3. As additional data continues to be added during the day to day editorial business in the time in which the differential backup is created, this data must be backed up by means of an incremental backup (see Chapter 4.1.1 page 15, Figure 4-3, "Incremental backup" option). Depending on how intensively work is carried out on the project, it is possible that new data is also added during this step. This data must then in turn be backed up by means of an incremental backup.



The faster these steps can be carried out consecutively, the smaller the amount of new data generated. Ideally, the project should be made inaccessible to users during the backup to prevent new data from being generated.

If these steps have been completed, a new project can be imported on the basis of the backup files created. The import can be carried in parallel with the export. I.e. the snapshot file created in step 1 can be imported while the differential backup is being created in step 2. The incremental backup(s) in step 3 are not carried out until the differential backup file created in step 2 has been imported.

7 Legal notices

The "FirstSpirit EnterpriseBackup" module is a product of Crownpeak Technology GmbH, Dortmund, Germany.

The user may only use the module as defined under the terms of the license agreed with Crownpeak Technology GmbH.

Details of possible external software products used, not produced by Crownpeak Technology GmbH, their own licenses and any update information, is given on the homepage of each FirstSpirit server in the "Legal Notices" area.

