



Smarten

Augmented Analytics

Powered by ElegantJ BI

Smarten Data Backup Guide

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Disclaimer

This document is intended to support administrators, technology managers or developers using and implementing Smarten. The business needs of each organization will vary and this document is expected to provide guidelines and not rules for making any decisions related to Smarten. The overall performance of Smarten depends on many factors, including but not limited to hardware configuration and network throughput.

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1 Introduction

As a standard practice, it is important to take Smarten backup on a regular basis. This document provides details about how to back up Smarten data on local storage and AWS S3.

Smarten provides backup scripts for Smarten running on Windows and the Linux environment. These scripts take incremental backup of Smarten data files by identifying a modified chunk in the files and copying it to a destination file using the delta-transfer algorithm. This makes the backup process faster and optimized.

For example, we have ten files in a data folder. Two files have been modified since the last backup was taken. Backup scripts uses rsync and robocopy commands for Linux and Windows respectively. These commands use the delta-transfer algorithm to copy files incrementally to the destination folder. These commands iterate source and destination folders and identify modified files and then identify modified bytes and merge them to the destination file. It does not copy and overwrite the whole modified file. This makes the file copy mechanism faster and makes optimum use of network bandwidth.

2 Smarten Data Folder Backup

You need to take a backup of the Smarten data folder, which is located by default at <SMARTEN_INSTALLATION_FOLDDER>/data on Windows and Linux.

2.1 Configuring Backup on Windows

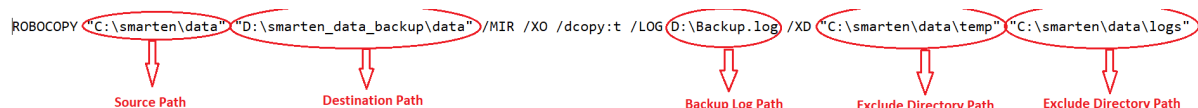
This section explains how to configure a backup script to take backup on local drive and AWS S3 on the Windows server.

You can find the backup script file for Windows in the Smarten.war deployment folder. You can find “smartendatabackup_windows.bat” in the smarten.war/docs/backup_scripts folder. You need to edit this file as per your deployment environment.

Storing Backup on Local Drive

The command below will store Smarten data backup on local drive. You need to edit highlighted parameters in your backup script file.

```
ROBOCOPY "C:\smarten\data" "D:\smarten_data_backup\data" /MIR /XO /dcopy:t /LOG D:\Backup.log /XD "C:\smarten\data\temp" "C:\smarten\data\logs"
```



SMARTEN BACKUP ON LOCAL DRIVE—WINDOWS

Storing Backup on AWS S3

Before configuring the backup script, S3 client must be installed on your Smarten server. S3 client command will be used to store backup files directly on S3. Please install S3 client per the steps given in the URL below:

<https://tecadmin.net/setup-s3cmd-in-windows/>

Once S3 client is installed, you need to uncomment below the mentioned S3 client command line and comment out the above mentioned local drive backup command in your backup script. You

need to configure S3 client command to store backup directly on S3. You need to configure the parameters mentioned below as per your environment in the command below in the script file:

```
python C:\s3cmd\s3cmd sync| C:\smarten\data s3://bucketname --exclude 'temp/*' --exclude 'logs/*' >> C:\backuplog.txt
```

SMARTEN BACKUP ON S3—WINDOWS

As shown in both commands above, four parameters need to be updated as per your environment.

Below are the details about those parameters:

Parameter	Description
Source Path	This path points to the Smarten data folder path. You need to update this path as per your Smarten deployment. By default, the Smarten data folder is located at <SMARTEN_INSTALLATION_FOLDDER>/data folder.
Destination Path	For local drive backup, this path points to the destination folder path where you want to store your backup. For S3 backup, this path points to the S3 bucket path where you want to store backup. You need to update this path as per your environment.
Backup Log Path	This parameter specifies the backup log folder path where you want to output logs of your backup process.
Exclude Directory Path	This parameter is used to specify a file or directory in the Smarten data folder that you want to exclude from the backup process. As shown in the image above, by default, we have excluded the “temp” and “logs” folders from the Smarten data folder. So, backup of these folders will not be taken. In the same way, you can specify any other folder in the data folder that you don’t want to back up.

Once a backup script is configured, you can refer to Section 4.1—Creating backup scheduler on Windows to configure a backup scheduler.

2.2 Configuring Backup on Linux

This section explains how to configure a backup script for backup on local drive and AWS S3 on the Linux server.

You can find the backup script file for Linux in the Smarten.war deployment folder. You can find “smartendatabakup_linux.sh” in the smarten.war/docs/backup_scripts folder. You need to edit this file as per your deployment environment.

Storing Backup on Local Drive

The command mentioned below will store Smarten data backup on local drive. You need to edit the highlighted parameters in your backup script file.

```
rsync -arv --exclude=logs --exclude=temp /Data/smarten/data /home/ubuntu/databackup/ --log-file=/var/log/smarendatabackup.txt
```

SMARTEN BACKUP ON LOCAL DRIVE—LINUX

Storing Backup on AWS S3

Before configuring the backup script, S3 client must be installed on your Smarten server. The S3 client command will be used to store backup files directly on S3. Please install S3 client as per the steps given in the URL below:

<https://cloudacademy.com/blog/how-to-use-aws-cli/>

Once S3 client is installed, you need to uncomment the below mentioned S3 client command line and comment out the above mentioned local drive backup command in your backup script. You need to configure S3 client command to store backup directly on S3. You need to configure the parameters mentioned below as per your environment in the command below in the script file:

```
s3cmd sync /home/ubuntu/data s3://bucketname --exclude 'temp/*' --exclude 'logs/*' >> /var/log/smarendatabackup.txt
```

SMARTEN BACKUP ON S3—LINUX

As shown in both commands above, four parameters need to be updated as per your environment. Below are the details about those parameters:

Parameter	Description
Source Path	This path points to the Smarten data folder path. You need to update this path as per your Smarten deployment. By default, the Smarten data folder is located at <SMARTEN_INSTALLATION_FOLDDER>/data folder.
Destination Path	For local drive backup, this path points to the destination folder path where you want to store your backup. For S3 backup, this path points to S3 bucket path where you want to store backup. You need to update this path as per your environment.
Backup Log Path	This parameter specifies the backup log folder path where you want to output logs of your backup process.
Exclude Directory Path	This parameter is used to specify file or directory in the Smarten data folder that you want to exclude from the backup process. As shown in the image above, by default, we have excluded the “temp” and “logs” folders from the Smarten data folder. So, backup of these folders will not be taken. In the same way, you can specify any other folder in the data folder that you don’t want to back up.

You need to set execute permission on the backup script file to run it:

```
# sudo chmod +x smartendatabackup_on_local.sh
```

Once the backup script is configured, you can refer to Section 4.2—Creating backup scheduler on Linux to configure the backup scheduler.

3 Smarten Backup of MySQL Metadata Database

Smarten can be deployed with the MySQL database as metadata database. The MySQL database backup must be included in the backup process. Apart from data folder backup, the MySQL metadata database backup script is also provided for Windows and Linux.

3.1 Configuring MySQL Backup on Windows

This section explains how to configure the backup script for backup of the MySQL database on local drive and AWS S3 on the Windows server.

You can find the backup script file for Linux in the Smarten.war deployment folder. You can find “smartendatabackup_mysql_windows.bat” in the smarten.war/docs/backup_scripts folder. You need to edit this file as per your deployment environment. For MySQL backup, the mysqldump command is used for database backup. It generates a backup file on a given backup path. You need to change the parameters below in the MySQL backup script:

```
@echo off
#Below line sets database username.Please specify appropriate prameters as per your environment.
set USERNAME=root Database Username
#Below line sets database password.Please specify appropriate prameters as per your environment.
set PASSWORD=**** Database Password
#Below line sets backup path.Please specify appropriate prameters as per your environment.
set BACKUPPATH=D:\Backup\MySQL\ Backup Path
#Below line sets the time and date on the backup file.
set TIMESTAMP=%DATE:~10,4%.%DATE:~4,2%.%DATE:~7,2%.%TIME:~0,2%.%TIME:~3,2%.%TIME:~6,2%
#Below line will take MySql backup on local drive.
#Please make sure that you have set proper path of mysqldump command in below line.
C:\wamp64\bin\mysql\mysql5.7.31\bin\mysqldump --user=%USERNAME% --password=%PASSWORD% --all-databases --result-file="%BACKUPPATH%%TIMESTAMP%.sql"
#Uncomment below line puted backup on S3.Please specify appropriate prametes as per your environment
python C:\s3cmd\s3cmd sync %BACKUPPATH% s3://S3bucketname >> C:\backuplog.txt
echo Done!
pause
exit
```

↓ Destination Path
 ↓ Backup Log Path

SMARTEN MYSQL BACKUP—WINDOWS

Parameter	Description
Database username	Specify MySQL database username.
Database password	Specify MySQL database user password.
Backup Path	This path points to the backup folder path where you want to store your backup. You need to update this path as per your environment.


Storing backup on AWS S3

Before configuring the backup script, S3 client must be installed on your Smarten server. The S3 client command will be used to store backup files on S3. Please install S3 client as per the steps given in the URL below:

<https://tecadmin.net/setup-s3cmd-in-windows/>

Once S3 client is installed, you need to uncomment the S3 client command line mentioned below in your backup script. You need to configure S3 client command to store backup on S3. You need to configure the parameters mentioned below as per your environment in the command below in the script file:

```
#Uncomment below line puted backup on S3.Please specify appropriate prametes as per your environment
#python C:\s3cmd\s3cmd sync %BACKUPPATH% s3://S3bucketname >> C:\backuplog.txt
echo Done!
```



SMARTEN MYSQL BACKUP ON S3—WINDOWS

Parameter	Description
Destination Path	This path points to S3 bucket path where you want to store backup. You need to update this path as per your environment.
Backup Log Path	This parameter specifies the backup log folder path where you want to output logs of your backup process.

Once the backup script is configured, you can refer to Section 4.1—Creating backup scheduler on Windows to configure the backup scheduler.

3.2 Configuring MySQL Backup on Linux

This section explains how to configure the backup script for backup of the MySQL database on local drive and AWS S3 on the Linux server.

You can find the backup script file for Linux in the Smarten.war deployment folder. You can find “smartendatabackup_mysql_linux.sh” in the smarten.war/docs/backup_scripts folder. You need to edit this file as per your deployment environment. For MySQL backup, the mysqldump command is used for database backup. It generates a backup file on a given backup path. You need to change the parameters below in the MySQL backup script:

```
#!/bin/bash
#Below line sets database username.Please specify appropriate prametes as per your environment.
USERNAME='root' Database Username


#Below line sets database password.Please specify appropriate prametes as per your environment.
PASSWORD='****' Database Password

#Below Line sets backup path.Please specify appropriate prametes as per your environment.
BACKUPPATH='/home/elegant/' Backup Path

# Below line sets the time and date on the backup file.
TIMESTAMP=`date +%Y-%m-%d_%H-%M-%S`

# Below line will take MySql backup on local drive.
mysqldump --user=$USERNAME --password=$PASSWORD --all-databases > $BACKUPPATH$$TIMESTAMP.sql

#uncomment below line to upload backup on s3. Please specify appropriate S3 bucket path in below line
#s3cmd sync $BACKUPPATH s3://S3bucketname >> /var/log/backuplog.txt
```



SMARTEN MYSQL BACKUP—LINUX

Parameter	Description
Database username	Specify MySQL database username.
Database password	Specify MySQL database user password.
Backup Path	This path points to the backup folder path where you want to store your backup. You need to update this path as per your environment.

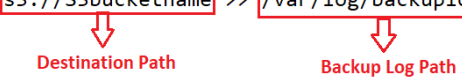
Storing Backup on AWS S3

Before configuring the backup script, S3 client must be installed on your Smarten server. The S3 client command will be used to store backup files on S3. Please install S3 client as per the steps given in the URL below:

<https://cloudacademy.com/blog/how-to-use-aws-cli/>

Once S3 client is installed, you need to uncomment the S3 client command line mentioned below in your backup script. You need to configure the S3 client command to store backup on S3. You need to configure the parameters mentioned below as per your environment in the command below in the script file:

```
#uncomment below line to upload backup on s3. Please specify appropriate S3 bucket path in below line
#s3cmd sync $BACKUPPATH s3://S3bucketname >> /var/log/backuplog.txt
```



 Destination Path Backup Log Path

SMARTEN MYSQL BACKUP ON S3—LINUX

Parameter	Description
Destination Path	This path points to the S3 bucket path where you want to store backup. You need to update this path as per your environment.
Backup Log Path	This parameter specifies the backup log folder path where you want to output logs of your backup process.

You need to set execute permission on the backup script file to run it as shown below:

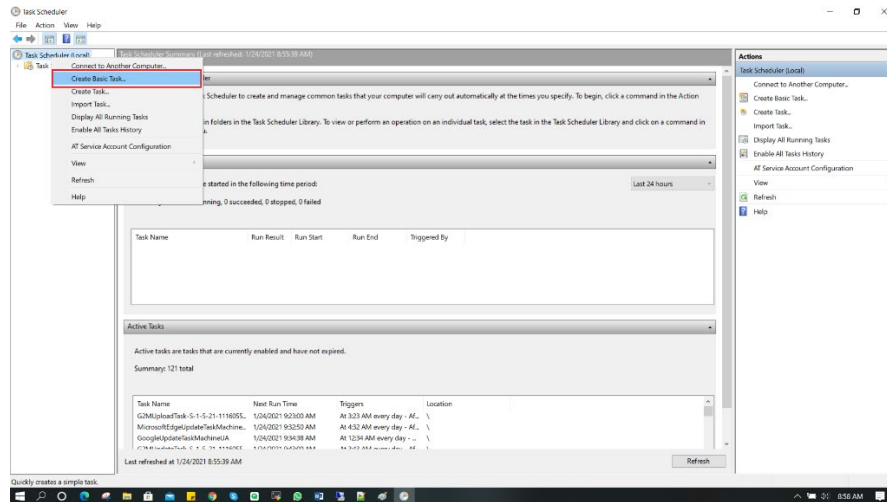
```
#sudo chmod +x smartenbackup_mysql_on_local.sh
```

Once the backup script is configured, you can refer to Section 4.2—Creating backup scheduler on Linux to configure backup scheduler.

4 Configure Backup Scheduler

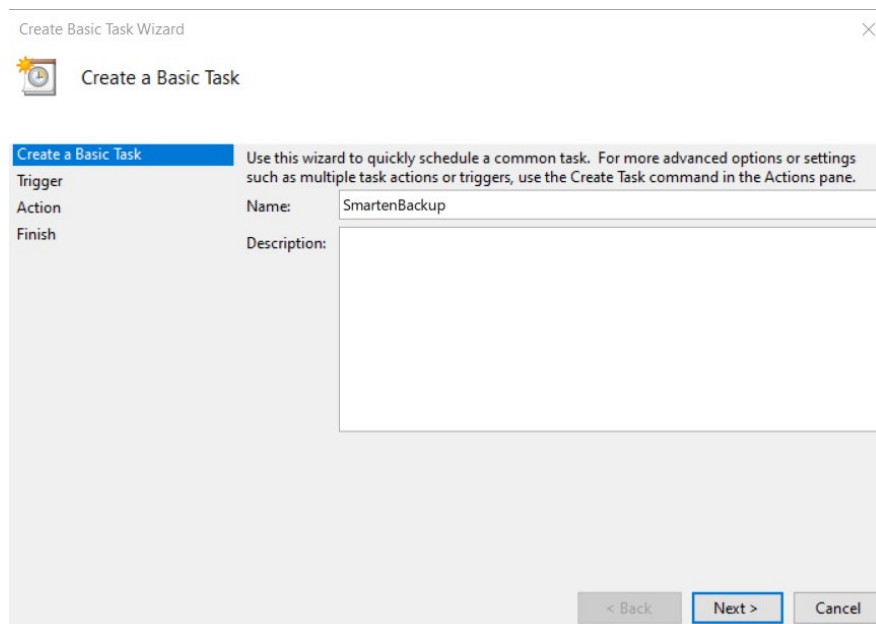
4.1 Creating Backup Scheduler on Windows

- Open Task Scheduler and set backup scheduler according to your needs. Click on Basic Task.



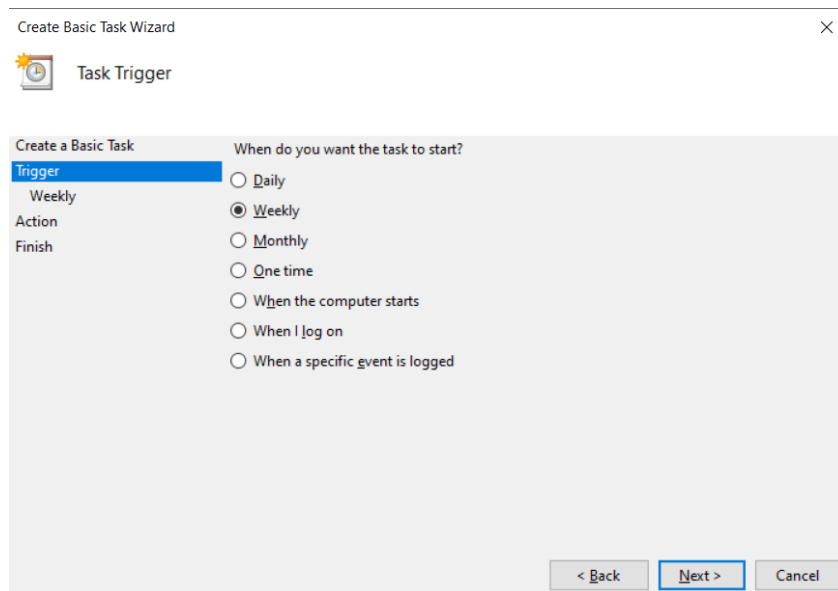
BACKUP SCHEDULER ON WINDOWS—CREATE BASIC TASK

- Enter name of backup job and click Next.



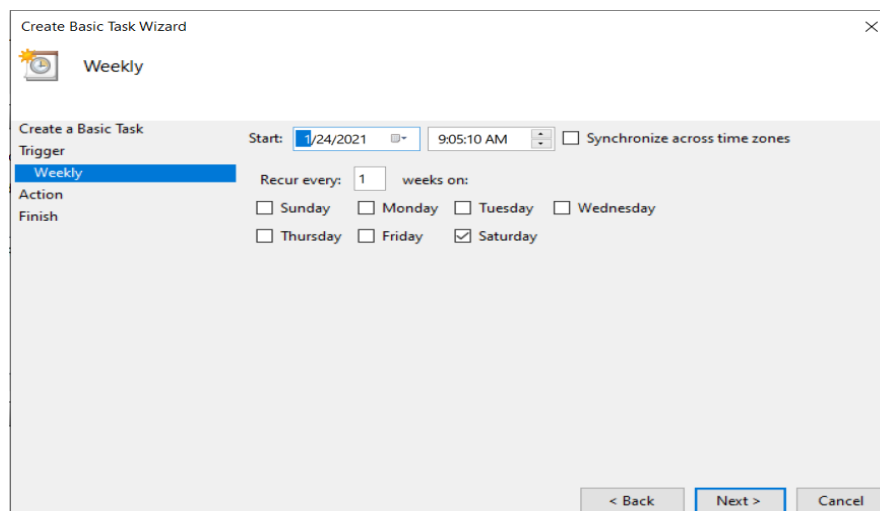
BACKUP SCHEDULER ON WINDOWS—CREATE BASIC TASK

- Set when you want the task to start and click Next.



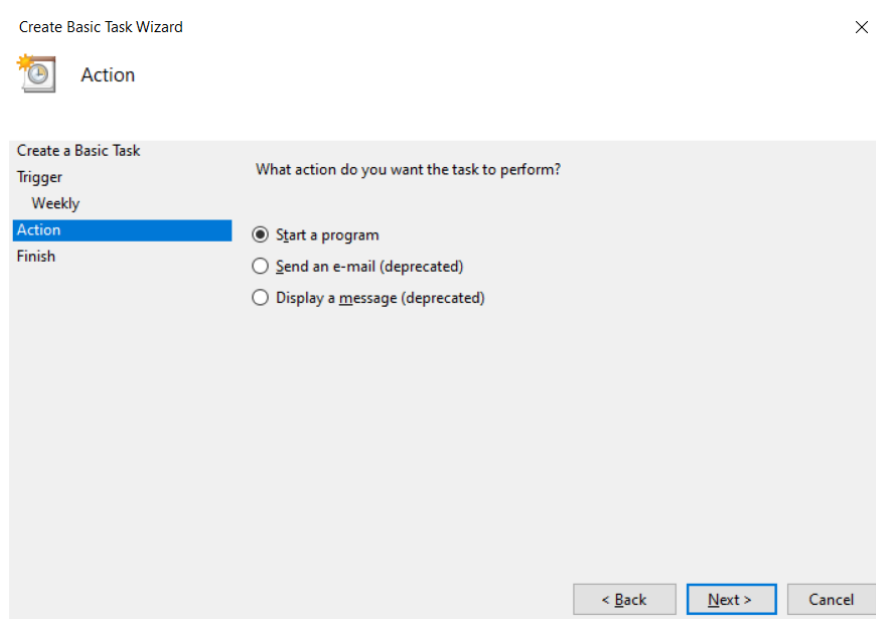
BACKUP SCHEDULER ON WINDOWS—TASK TRIGGER

- Set when you want the task to start and click Next.



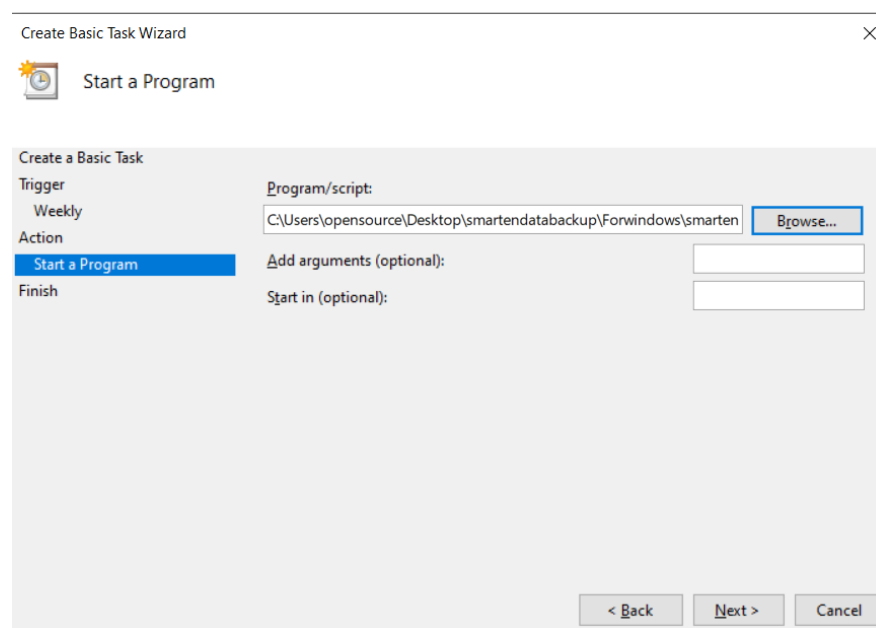
BACKUP SCHEDULER ON WINDOWS—SET WEEKDAY

- Select Start a program and click Next.



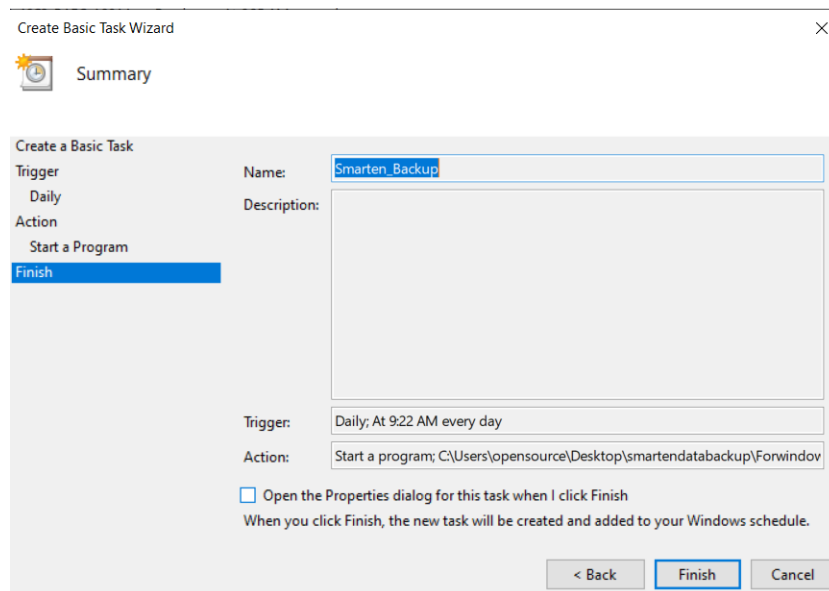
BACKUP SCHEDULER ON WINDOWS—SET ACTION

- Browse and select your backup script and click Next.



BACKUP SCHEDULER ON WINDOWS—SET A SCRIPT

- Click Finish.



BACKUP SCHEDULER ON WINDOWS—TASK FINISHED

4.2 Creating Backup Scheduler on Linux

- Set backup scheduled using root user.
- Open cron scheduler using the following command:
crontab -e
- For example, I have set every Sat midnight for scheduled Smarten data backup.

```
00 23 * * 6 sh /smartendatabackup_on_local.sh
```

↓
Backup Script Path

CRON SCHEDULER ON LINUX—CREATE SCHEDULER

- Save crontab and exit.

5 Product and Support Information

Find more information about Smarten and its features at www.smartent.com

Support: support@smartent.com

Sales: sales@smartent.com

Feedback & Suggestions: support@smartent.com

Support & Knowledgebase Portal: support.smartent.com