



Backup Advanced Backup Manager (B247PRO) v9

MySQL Database Backup and Restore for Windows





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Revision History

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1 Overview

1.1 What is this software?

Backup247 brings you specialized client backup software, namely Backup247 Advanced Client (B247PRO), to provide a set of tools to protect your MySQL Database Server.

1.2 System Architecture?

Below is the system architecture diagram illustrating the major elements involved in the backup process among the MySQL Database Server, Backup247 Advanced Client (B247PRO) and B247CBS.

In this user guide, we will focus on the software installation, as well as the end-to-end backup and restore process Backup247 Advanced Client (B247PRO) (Agent-based).







2 Preparing for Backup and Restore

2.1 Hardware Requirement

To achieve the optimal performance when Backup247 Advanced Client (B247PRO) is running on your machine, refer to the following article for the list of hardware requirements.

FAQ: Backup247 Hardware Requirement List (HRL) for version 9.1 or above

2.2 Software Requirement

Make sure the operating system where you have the MySQL Database Server installed is compatible with the Backup247 Advanced Client (B247PRO). Refer to the following article for the list of compatible operating systems and application versions.

FAQ: Backup247 Software Compatibility List (SCL) for version 9.1 or above

2.3 Antivirus Exclusion

To optimize performance of Backup247 Advanced Client (B247PRO) on Windows, and to avoid conflict with your antivirus software, refer to the following Wiki article the list of processes and directory paths that should be added to all antivirus software white-list / exclusion list:

FAQ: Suggestion on antivirus exclusions to improve performance of Backup247 software on Windows

2.4 Backup247 Advanced Client (B247PRO) Installation

Make sure that the latest version of Backup247 Advanced Client (B247PRO) is installed on your computer with Internet access for connection to your MySQL Database Server.

User should also stay up-to-date when newer version of Backup247 Advanced Client (B247PRO) is released. To get our latest product and company news through email, please subscribe to our mailing list.

https://www.Backup247.com/jsp/en/home/subscribe mail list.jsp

2.5 Add-on Module Requirement

Make sure the MySQL Database Server feature has been enabled as an add-on module in your Backup247 Advanced Client (B247PRO) user account.

Please contact your backup service provider for more details.

General	ackup	Client Settings	Contact
Settings of the	client t	backup agent for t	his user.
Backup Cli	ent		
B247Pro U	lser	O B247Lite Us	91
Add-on Mo	dules	;	
🗌 🛃 Mic	rosoft I	Exchange Server	
🖌 📉 My:	SQL Da	atabase Server	
Lotus Lot	us Don	nino	

2.5.1 Backup Quota Requirement

Make sure that your Backup247 Advanced Client (B247PRO) user account has sufficient quota assigned to accommodate the storage of MySQL Database Server backup set and retention policy.

Please contact your backup service provider for more details.

2.5.2 Java Heap Size

The default Java heap size setting on Backup247 Advanced Client (B247PRO) is 2048MB. It is highly recommended to increase the Java heap size setting to be at least 4096MB to improve backup and restore performance. The actual heap size is dependent on amount of free memory available on your MySQL Database Server.

2.5.3 Network Drive

The login accounts for network drives must have read and write access permission to ensure that backup and restore would be successful.

2.6 MySQL Database Server Requirements

Please ensure that the following requirements and conditions are met on the MySQL database server.

2.6.1 MySQL Version

Backup247 Advanced Client (B247PRO) is installed on the MySQL database server.

2.6.2 MySQL Database Status

The MySQL database instance is online.

Example: MySQL v5.6 on Windows Server 2016 (64-bit), the default service name is MySQL56.

🔚 Computer Management							
File Action View Help	File Action View Help						
🗢 🔿 🙍 🖬 🗐 🧟 🛃 🚺	▶ ■ Ⅱ Ⅰ▶						
E Computer Management (Local)	Q Services						
V 🙀 System Tools	MySQL56	Name	Description	Status	Startup Type	Log On As	
Event Viewer		🍓 Microsoft Account Sign-in	Enables use		Manual (Trigger Start)	Local System	
> 🙀 Shared Folders	Stop the service	🆏 Microsoft App-V Client	Manages A		Disabled	Local System	
> 🜆 Local Users and Groups	Restart the service	🍓 Microsoft iSCSI Initiator Ser	Manages In		Manual	Local System	
> 🔊 Performance		🍓 Microsoft Passport	Provides pr		Manual (Trigger Start)	Local System	
📇 Device Manager		🍓 Microsoft Passport Container	Manages Io		Manual (Trigger Start)	Local Service	
🗸 🚰 Storage		🍓 Microsoft Software Shadow	Manages so		Manual	Local System	
> 🐌 Windows Server Backup		🍓 Microsoft Storage Spaces S	Host service		Manual	Network Service	
📅 Disk Management		🖏 MySQL56		Running	Automatic	Network Service	
 Services and Applications 		🍓 NC Host Agent	Network Co		Disabled	Local System	
Routing and Remote Access		🍓 Net. Tcp Port Sharing Service	Provides abi		Disabled	Local Service	
Services		🍓 Netlogon	Maintains a		Manual	Local System	
WMI Control		🍓 Network Connection Broker	Brokers con	Running	Manual (Trigger Start)	Local System	
		Network Connections	Manages o		Manual	Local System	
		🌼 Network Connectivity Assis	Provides Dir		Manual (Trigger Start)	Local System	

Example: MySQL v8 on Windows Server 2016, the default service name is MySQL80.

🜆 Computer Management						
File Action View Help						
🗢 🏟 🙍 📷 🛅 🔯 🔒 🛛	2 🖬 🕨 🗉 🕪					
🜆 Computer Management (Local	O Services					
 System Tools Tack Scheduler 	MySQL80	Name	Description Status	Startup Type	Log On As	
	Stop the service Pause the service <u>Restart</u> the service	Microsoft Account Sign-in Microsoft App-V Client Microsoft ISCSI Initiator Ser Microsoft Passport Microsoft Passport Container Microsoft Software Shadow Microsoft Storage Spaces S Microsoft Reviere	Enables use Manages A Manages In Provides pr Manages Io Manages so Host service	Manual (Trigger Start) Disabled Manual Manual (Trigger Start) Manual (Trigger Start) Manual Manual Manual	Local System Local System Local System Local System Local Service Local System Network Service Local Service	
 Bervices and Applications Routing and Remote Ac Services WMI Control 		MyScl 1004C MyScl 20 Wet Tcp Port Sharing Service Network Connection Broker Network Connections Network Connections	Runnin Provides abi Maintains a Brokers con Manages o Provides Dir	g Automatic Disabled Manual g Manual (Trigger Start) Manual Manual (Trigger Start)	Network Service Local Service Local System Local System Local System Local System	

2.6.3 TCP/IP Port

Check the listening port of the MySQL database instance (default is 3306) using the command **netstat –b –a**.

C:\>nets	tat -b -a			
Detine 0				
ACTIVE CO	onnections			
Proto	Local Address		Foreign Address	State
TCP	0.0.0.0:135		w2k16-std:0	LISTENING
RpcSs				
[svchos	t.exe]			
TCP	0.0.0.0:445		w2k16-std:0	LISTENING
Can not	obtain ownership in	nfori	mation	
TCP	0.0.0.0:2179		w2k16-std:0	LISTENING
[vmms.ez	xe]			
TCP	0.0.0.0:3306		w2k16-std:0	LISTENING
[mysqld	.exej			
TCP	0.0.0.0:3389		w2k16-std:U	LISTENING
Termse.	rvice			
[SVCHOS	0 0 0 0.5005		$w^{2k_{1}}6-c+d\cdot 0$	TTOTENTNO
Can not	obtain ownership in	for	mation	LISIENING
	$0 0 0 0 \cdot 47001$	11.011	$w^{2k_{16-s+d} \cdot 0}$	LISTENING
Can not	obtain ownership in	nfor	mation	LIGIDNING
TCP	0.0.0.0:49664		w2k16-std:0	LISTENING
Can not	obtain ownership in	nfori	mation	
TCP	0.0.0.0:49665		w2k16-std:0	LISTENING
[lsass.	exe]			
TCP	0.0.0.0:49666		w2k16-std:0	LISTENING
EventL	og			
[svchos	t.exe]			
TCP	0.0.0.0:49667		w2k16-std:0	LISTENING
[spools	v.exe]			
TCP	0.0.0.0:49668		w2k16-std:0	LISTENING
Session	n£nv			
[svchos	t.exej			
TCP	U.U.U.U:49669		WZKI6-STA:U	LISTENING
РОТІСУ	Agent			

2.6.4 Mysqldump Utility

The mysqldump utility is installed on the MySQL database server.

Example: the default location for the mysqldump utility for MySQL v5.6.x is located in the following folder C:\Program Files\MySQL\MySQL Server 5.6\bin

2.6.5 Mysqldump Utility Version

The mysqldump utility is the same version as the MySQL database.

To check the mysqldump version use the mysqldump - -version command.

Example: MySQL v5.6

```
C:\Program Files\MySQL\MySQL Server 5.6\bin>mysqldump --version
mysqldump Ver 10.13 Distrib 5.6.41, for Win64 (x86_64)
```

C:\Program Files\MySQL\MySQL Server 5.6\bin>

Example: MySQL v8.0

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysqldump --version
mysqldump Ver 8.0.12 for Win64 on x86_64 (MySQL Community Server -
GPL)
```

```
C:\Program Files\MySQL\MySQL Server 8.0\bin>
```

24/7

MySQL database version:

Example: MySQL v5.6

```
mysql> select version();
+----+
| version() |
+----+
| 5.6.41-log |
+---++
1 row in set (0.00 sec)
mysql>
```

Example: MySQL v8.0

```
mysql> select version();
+-----+
| version() |
+----++
| 8.0.12 |
+----++
1 row in set (0.00 sec)
mysql>
```

2.6.6 User Account Privileges

A MySQL database user account with the following privileges must be setup for the backup operation.

Example: MySQL v5.6

```
mysql> GRANT ALL PRIVILEGES ON *.* TO "username"@"localhost"
IDENTIFIED BY "password";
Query OK, 0 rows affected (0.00 sec)
mysql> GRANT ALL PRIVILEGES ON *.* TO
"username"@"localhost.localdomain" IDENTIFIED BY "password";
Query OK, 0 rows affected (0.00 sec)
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)
mysql>
```

For MySQL 8 the use of GRANT to define account authentication characteristic is deprecated. For more information, please refer to the MySQL 8.0 Reference Manual. As an alternative, you must first create the user and set the authentication characteristic by using CREATE USER before setting the privileges of the user using GRANT.

Example: MySQL v8.0

```
mysql> CREATE USER 'root'@'localhost.localdomain' IDENTIFIED BY
'Abcd123$%';
Query OK, 0 rows affected (0.32 sec)
mysql> GRANT ALL PRIVILEGES ON *.* TO 'root'@'localhost';
Query OK, 0 rows affected (0.01 sec)
mysql> GRANT ALL PRIVILEGES ON *.* TO 'root'@'localhost.localdomain';
Query OK, 0 rows affected (0.12 sec)
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)
```

2.6.7 Localhost

Verify that 'localhost' on the MySQL database server is resolvable and 'localhost' is allowed to access the MySQL database instance on the MySQL service listening port (default 3306).

```
C: \>ping localhost
Pinging 10.90.10.40 with 32 bytes of data:
Reply from 10.90.10.40: bytes=32 time<1ms TTL=64
Reply from 10.90.10.40: bytes=32 time<1ms TTL=64
Reply from 10.90.10.40: bytes=32 time<1ms TTL=64
Ping statistics for 10.90.10.40:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
C: \>
```

```
# telnet localhost 3306
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'
J
5.6.31vB#'8%/kQ3K\n6``Aemysql native password
```

NOTE

The telnet utility is not installed by default on some Windows versions.

2.6.8 MySQL Virtual System Databases

Exclude the 'information_schema' and 'performance_schema' databases are MySQL virtual system databases, which contains information about the user databases on the MySQL instance. They are read-only and cannot be backed up.



2.6.9 Temporary Directory 24/7

The databases selected for backup will be temporarily spooled to a temporary directory before being uploaded to the backup server or destination storage.

Ensure that the temporary directory configured for the MySQL database backup has sufficient disk space for the backup operation, the free space on the temporary directory drive should be at least 150% of the database size. As the temporary directory is also used for storing index files and any incremental or differential delta files generated during the backup job before they are uploaded to the backup destination.

Please bear in mind the size of the databases may grow over time and you may need to review the temporary directory free space requirements on a regular basis.

To calculate for the size of your databases run the command below.

+	+	+
Databa <mark>se</mark>	Size	(MB)
+	+	+
inform <mark>ation schema</mark>		0.01
mysql		0.90
perform <mark>ance schema</mark>		0.00
sakila		6.44
world		0.77
+	+	+
5 rows in set (0.53 s	ec)	

2.7 Limitations

- 1. Backup and restore must be to the same MySQL database version.
- 2. When restoring MySQL databases to an alternate location only one database can be selected and restored at any one time.
- 3. Cannot restore the MySQL database nodes to original or alternate location.
- 4. Restoring databases to another machine can only be done using the **Restore raw file** option.

2.8 Best Practices and Recommendations

Temporary Directory

To ensure an optimal backup/restoration performance, it is highly recommended to set the temporary directory folder to a location with sufficient free disk space. It must be on another location other than Drive C: (e.g., Drive E:).

Periodic Backup Schedule

The periodic backup schedule should be reviewed regularly to ensure that the interval is sufficient to handle the data volume on the machine. Over time, data usage pattern may change on a production server, i.e., the number of new files created, the number of files which are updated/deleted, and new users may be added etc.

Consider the following key points to efficiently handle backup sets with periodic backup schedule.

- Hardware to achieve optimal performance, compatible hardware requirements is a must. Ensure you have the backup machine's appropriate hardware specifications to accommodate frequency of backups,
 - so that the data is always backed up within the periodic backup interval
 - so that the backup frequency does not affect the performance of the production server
- Network make sure to have enough network bandwidth to accommodate the volume of data within the backup interval.
- Retention Policy also make sure to consider the retention policy settings and retention area storage management which can grow because of the changes in the backup data for each backup job.

3 Creating a MySQL Database Backup Set

1. Click the Backup Sets icon on the main interface of Backup247 Advanced Client (B247PRO).



2. Create a new backup set by clicking the Add button to created new backup set.

Backup Sets	
	Sort by Creation Time
Add new backup set	
	Close Help



3. Select the **Backup set type** and name your new backup set and enter the login information for the MySQL server then click **Next** to proceed.

Name			
MySQL Database			
Backup set type			
📉 MySQL Backup	~		
Login ID			
root			
Password			
•••••			
Host	Port	t	
localhost	33	06	
Path to mysqldump			
C:\Program Files\MySQL\MySQ	L Server 5.7\bin\mysqld	um Change	

4. In the Backup Source menu, select the MySQL databases you would like to backup. Click **Next** to proceed.

Backup Source
Image: Second state sta
Previous Next Cancel Help

5. In the Schedule menu, you can configure a backup schedule for backup job to run automatically at your specified time interval.

	Schedule	
	Run scheduled backup for this backup set Off	
		Previous Next Cancel Help
Click + to	add a new schedule. Click Next to proceed v	when you are done setting.
	New Backup Schedule Name	
	Daily-1	
	Type Daily V	
	Start backup	
	Stop until full backup completed	
	Run Retention Policy after backup	
		OK Cancel Help

6. Select a backup mode and click + to add a backup storage destination.

Destination
Backup mode Sequential Existing storage destinations Add new storage destination / destination pool
Previous Next Cancel Help

 Select the backup storage destination (MySQL backup is only available on Business or Enterprise Plans). Click OK then Next to Example: B247CBS server

● B247PRO				×
New Storage Destination / Destination Pool				
Name				
Hot Cloud Storage Basic-Lite Plans				
Destination storage				
🖨 Hot Cloud Storage Basic-Lite Plans 🗸 🗸				
Access the Internet through provy				
	OK	Cancel	На	
		Cancel	Hel	P

8. In the Encryption window, the default **Encrypt Backup Data** option is enabled with an encryption key preset by the system which provides the most secure protection.

	Encryption	
Encrypt Backup Data On Encryption Type Default User password Custom		
		Previous Next Cancel Help

You can choose from one of the following three Encryption Type options:

- Default an encryption key with 44 alpha numeric characters will be randomly generated by the system.
- User password the encryption key will be the same as the login password of your Backup247 Advanced Client (B247PRO) at the time when this backup set is created. Please be reminded that if you change the Backup247 Advanced Client (B247PRO) login password later, the encryption keys of the backup sets previously created with this encryption type will remain unchanged.
- Custom you can customize your encryption key, where you can set your own algorithm, encryption key, method, and key length.

Encrypt Backup Data
On Example 1
••••••
Re-enter encryption key
•••••
Method
C ECB O CBC
Key length
0 128-Dit • 256-Dit
Previous Next Cancel H

Click **Next** when you are done setting.

9. If you have enabled the Encryption Key feature in the previous step, the following pop-up window shows, no matter which encryption type you have selected.

	Encryption		
Encrypt Back On Encryption Ty Custom	up Data ype		
	You are advised to write this encryption key down on paper and keep it in a safe place. You will need it when you need to restore your files later. Please confirm that you have done so. •••••• Unmask encryption key	Copy to clipboard	Confirm
C ECB • Key length			

The pop-up window has the following three options to choose from:

Unmask encryption key – The encryption key is masked by default. Click this option to show the encryption key.

Encrypt Backu	p Data		
Encryption Ty	De la		
Custom			
	You are advised to write this encryption key down on paper and keep it in a safe place. You will need it when you need to restore your files later. Please confirm that you have done so.		
	B2AG/uMvnxgvMA4DrmzBI99S3zoM+FKw3Vh69rTxJ88=		
	 Mask encryption key		
	Γ	Copy to clipboard	Confirm
CECB C Key length	8C) 256-bit		
C ECB O C Key length 128-bit (a safe place. You will need it when you need to restore your files later. Please confirm that you have done so. B2AG/uMvnxgvMA4DrmzBI99S3zoM+FKw3Vh69rTxJ88= Mask encryption key BC 256-bit	Copy to clipboard	Confirm

- Copy to clipboard Click to copy the encryption key, then you can paste it in another location of your choice.
- **Confirm** Click to exit this pop-up window and proceed to the next step.
- 10. Enter the Windows login credentials used by Backup247 Advanced Client (B247PRO) to authenticate the scheduled or continuous backup job and click on **Next** to proceed.

omain Name (e.g Ahsay.com) / Host Name
w2k16-mysql
ser name
Iser
assword
Previous Next Cancel Help

11. Backup set created.

i. To start a manual backup job, click on **Backup now.**



ii. To verify the backup set settings, click on **Close** and then click on the MySQL backup set to complete the setup.

Backup Sets	Sort by Creation Time V
MySQL Database Owner: w2k16-mysql Newly created on Thursday, February 03, 2022 17:23	
	Close Help

MySQL Database	General	^
General	Name MvSOL Database	
Source Backup Schedule Destination Show advanced settings	Impsile Database Owner w2k16-mysql MySQL Server Login ID root Password •••••• Host localhost Path to mysqldump C:\Program Files\MySQL\MySQL Server 5.7\bin\m Windows User Authentication Domain Name (e.g Ahsay.com) / Host Name w2k16-mysql	Port 3306 hysqldum Change
Delete this backup set		Save Cancel Help

12. It is highly recommended to change the <u>Temporary Directory</u>. Select another location with sufficient free disk space other than Dive C\Users\Administrator\temp.

Go t	o Others	> Tem	porary	Directory	. Click	Change	to browse	for anoth	er location.

MySQL Database	Temporary Directory	
General	Temporary directory for storing backup files D:\temp	Change
Source	82.27GB free out of total 120GB space in D: Remove temporary files after backup	
Backup Schedule Destination	Compressions	
Deduplication	Select compression type Fast with optimization for local	
Retention Policy	Encryption	
Command Line Tool	Encryption key Copy to clipboard Unmask encryption key	
Reminder	Algorithm AES	
Bandwidth Control	Method CBC Key length 256 bits	
Others		
Hide advanced settings		
Delete this backup set	Sav	/e Cancel Help

13. Optional: Select your preferred **Compression** type. By default, the compression is Fast with optimization for local.

Go to Others > Compressions. Select from the following list:

- No Compression
- Normal
- Fast (Compressed size larger than normal)
- Fast with optimization for local

MySQL Database	Temporary Directory	
General Source Backup Schedule Destination	Temporary directory for storing backup files D:\temp 82.27GB free out of total 120GB space in D: ☑ Remove temporary files after backup Compressions Ealert compressions time	Change
Deduplication Retention Policy Command Line Tool Reminder Bandwidth Control	Fast with optimization for local No Compression Normal Fast (Compressed size larger than normal) Fast with optimization for local Algorithm AES Method CBC Key length 256 bits	
Others Hide advanced settings		
Delete this backup set		Save Cancel Help

4 Overview on the Backup Process

The following steps are performed during a MySQL Database backup job. For an overview of the detailed process for Steps **3**, **5**, **11**, and **13**, please refer to Chapter 12 of the <u>Backup247 Advanced</u> <u>Client (B247PRO) v9 Quick Start Guide for Windows.</u>

- Periodic Data Integrity Check (PDIC) Process (Step 3)
- Backup Set Index Handling Process
 - Start Backup Job (Step 5)
 - Completed Backup Job (Step 13)
- Data Validation Check Process (Step 11)



5 Running Backup Jobs

5.1 Login to Backup247 Advanced Client (B247PRO)

For instructions on how to do this refer to Chapter 8 of <u>Backup247 Advanced Client</u> (B247PRO) v9 Quick Start Guide for Windows.

5.2 Start a Manual Backup

1. Click the Backup icon on the main interface of Backup247 Advanced Client (B247PRO).



2. Select the MySQL Database backup set which you would like to start a manual backup.

Please Select The Backup Set To Sort by Creat	Backup
MusqL Database Owner: w2k16-mysql Newly created on Thursday, February 03, 2022 17:23	
	Close Help

3. If you would like to modify the Destinations, Migrate Data or Run Retention Policy settings, click on **Show advanced option**.



4. When advanced options are shown, it is recommended that you tick the checkbox next to **Run Retention Policy after backup** in the Retention Policy section at the bottom. This will help you save hard disk quota in the long run.



NOTE

The Migrate Data option will only be displayed if Deduplication is enabled for the backup set. When the Migrate Data option is enabled, the existing data will be migrated to the latest version during a backup job. Backup job(s) for backup sets with Migrate Data enabled may take longer to finish. For more information about this feature, refer to <u>B247CBS v9 New</u> <u>Features Datasheet.</u>

5. Click on **Backup** to start the backup job. Once finished, "Backup Completed Successfully" will be displayed.

	Backup	
MySQL Databas	se	
B247CBS (Host: 10 Rackup Complet Estimated time left Backed up Elapsed time Transfer rate	0.3.121.17:80) ted Successfully 0 sec 3.47MB (2 files. 1 directory. 0 link) 11 sec 742.03Kbit/s	6
		Close Help
To check the log of your back backup with corresponding da	up, click this icon . It will show yo	ou the log of your

		Show	All
Type	Log		Time
O	Start [B247Pro v9.1.0.0]	02/04	/2022 10:03:16
Ō	Saving encrypted backup set encryption keys to server	02/04	/2022 10:03:17
0	Start Backup Database [Deduplication: enabled, Deduplication scope: All files within the same backup set, Migrate Delt	02/04	/2022 10:03:18
0	Using Temporary Directory D:temp\1643880208321\085@1643880748194	02/04	/2022 10:03:18
0	Start running pre-commands	02/04	/2022 10:03:19
0	Finished running pre-commands	02/04	/2022 10:03:19
0	[Start] Backing up database "sakila" to "D:temp\1643880208321\SpoolArea\MySQL\sakila.sql"	02/04	/2022 10:03:19
0	[End]	02/04	/2022 10:03:22
0	[Start] Backing up database "world" to "Ditemp\1643880208321\SpoolArea\MySQL\world.sql"	02/04	/2022 10:03:22
0	[End]	02/04	/2022 10:03:22
0	Start running post-commands	02/04	/2022 10:03:22
0	Finished running post-commands	02/04	/2022 10:03:22
0	Downloading server file list	02/04	/2022 10:03:22
0	Downloading server file list Completed	02/04	/2022 10:03:23
0	Reading backup source from hard disk	02/04	/2022 10:03:24
0	Reading backup source from hard disk Completed	02/04	/2022 10:03:24
Q.	[New Directory] MySQL	02/04	/2022 10:03:24
Q	[New File] 33% of "MySQL'world.sql"	02/04	/2022 10:03:24
Q	[New File] 59% of "MySQL'world.sql"	02/04	/2022 10:03:24
Q	[New File] 86% of "MySQL'world.sql"	02/04/2022 10:03:24	
Q	[New File] 100% of "MySQL'world.sql"	02/04	/2022 10:03:24
U.	[New File] 15% of "MySQL'sakila.sql"	02/04	/2022 10:03:24
θ	[New File] 27% of "MySQL\sakila.sgl"	02/04	/2022 10:03:24

Close

5.3 Configure Backup Schedule for Automated Backup

1. Click on the **Backup Sets** icon on the Backup247 Advanced Client (B247PRO) main interface.



2. Select the backup set that you would like to create a backup schedule for.

Back	up Sets		
		Sort by Creation Time 🖌]
MySQL Database Owner: w2k16-mysql Newly created on Thursday, Fe	bruary 03, 2022 17:23		
Add			
			Close Help
		-7	



3. Click Backup Schedule.



4. Turn on the backup schedule by switching the "Run scheduled backup for this backup set" feature to **On**, then click the **+** icon next to **Add new schedule**.

Set leadure to OII, then click t	ne + icon next to Add new schedule.
MySQL Database	Schedule
General	Run scheduled backup for this backup set On
Source	Existing schedules
Backup Schedule	
Destination Show advanced settings	
Delete this backup set	Save Cancel Help



5. The New Backup Schedule window will appear.

MVSOL Database Schodulo	
New Backup Schedule	
Name Daily-1	
Type Daily Start backup at 10 : 34 Stop until full backup completed Run Retention Policy after backup	
	OK Cancel Help
Delete this backup set	Save Cancel Help

In the New Backup Schedule window, configure the following backup schedule settings.

- Name the name of the backup schedule.
- **Type** the type of backup schedule. There are four (4) different types of backup schedule: Daily, Weekly, Monthly and Custom.
 - Daily the time of the day or interval in minutes/hours when the backup job will run.

New Backup Schedule	
Name	
Daily-1	
Type Daily 🖌	
Start backup at V 15 V: 41 V	
Stop	
until full backup completed 🖌	
Run Retention Policy after backup	

 Weekly – the day of the week and the time of the day or interval in minutes/hours when the backup job will run.

Weekl	v. 1						
WEEKI	y- 1						
Туре							
Weekl	y v	1					
Backup	on the	i se dav	c of the	week			
Sun		ton	Tue	Week	t 🗆 Thi	- Eri	J Sat
Start h	ackup	5			. <u> </u>		
Start St							
at	•	23 🗸	: 00 •	<u> </u>			
Stop							
				2			

• **Monthly -** the day of the month and the time of that day when the backup job will run.

Name	
Monthly-1	
Turpe	
lype	
Monthly V	
Backup on the following day every month	
● Day Last ¥	
🔿 First 🖌 Sunday 🖌	
Start backup at	
23 V: 00 V on the selected days	
Stop	
until full backup completed	

• Custom – a specific date and time when the backup job will run.

New Backup Schedule	
Name	
Custom-1	
Type Custom V Backup on the following day once 2022 December V 31 V Start backup at 23 V: 59 V Stop	
until full backup completed 🖌	
Run Retention Policy after backup	

- Start backup the start time of the backup job.
 - at this option will start a backup job at a specific time.
 - every this option will start a backup job in intervals of minutes or hours.



Here is an example of a backup set that has a periodic and normal backup schedule.

New Backup Schedule	New Backup Schedule
Name	Name
Weekly-1	Weekly-2
Type Weekly	Type Weekly
Backup on these days of the week	Backup on these days of the week Image: Second se
Start backup every V 4 hours V	Start backup
Stop until full backup completed	Stop until full backup completed
✓ Run Retention Policy after backup	Run Retention Policy after backup
	Element 4.0

Figure 1.1

Figure 1.2

Figure 1.1 – Periodic backup schedule runs every 4 hours from Monday – Friday during business hours

Figure 1.2 – Normal backup schedule runs at 21:00 or 9:00 PM on Saturday and Sunday on weekend non-business hours

- Stop the stop time of the backup job. This only applies to schedules with start backup "at" and is not supported for periodic backup schedule (start backup "every")
 - until full backup completed this option will stop a backup job once it is complete. This is the configured stop time of the backup job by default.
 - after (defined no. of hrs.) this option will stop a backup job after a certain number of hours regardless of whether the backup job has completed or not. This can range from 1 to 24 hrs.
- Run Retention Policy after backup if enabled, the Backup247 Advanced Client (B247PRO) will run a retention policy job to remove files from the backup destination(s) which have exceeded the retention policy after performing a backup job. To save hard disk quote in the long run, it is recommended to enable this option.



As an example, the four types of backup schedules may look like the following:



6. Click **Save** to confirm your settings once done.

6 Restoring Data

The restore options available:

- i. **Original location** Backup247 Advanced Client (B247PRO) will restore the database(s) from the backup destination and apply them to the original production MySQL instance.
- ii. Alternate location Backup247 Advanced Client (B247PRO) will restore the database(s) from the backup destination and apply them to the either the original MySQL instance or another MySQL instance on the production machine. This option can also be used to clone a database by changing the database name.
- iii. Restore raw file Backup247 Advanced Client (B247PRO) will restore the database
 *.sql files to a location on the local machine. Which then can be copied to another
 MySQL server on another machine for recovery.

6.1 Login to Backup247 Advanced Client (B247PRO)

For instructions on how to do this refer to Chapter 8 of <u>Backup247 Advanced Client</u> (B247PRO) v9 Quick Start Guide for Windows.

6.2 Automatic MySQL Database Restore

Restore files from your backup destination and automatically apply them to the MySQL database server in the original location.

 Login to MySQL Server using MySQL Command Line Client and verify the database instance is running.

```
Enter password: *******
Welcome to the MySQL monitor.
                            Commands end with; or \g.
Your MySQL connection id is 36
Server version: 5.7.17-log MySQL Community Server (GPL)
Copyright (c) 2000, 2016, Oracle and/or its affiliates. All rights
reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input
statement.
mysql> show databases;
+-----+
| Database
+----+
| information schema |
| mysql
| performance schema |
| sakila
| sys
                   | world
+----+
6 rows in set (0.00 sec)
mysql>
```

2. In the Backup247 Advanced Client (B247PRO) main interface, click the **Restore** icon.



3. Select the backup set that you would like to restore the MySQL Database from.

Please Se	elect The Backup Set	Sort by Creation Time
	MySQL Database Owner: w2k16-mysql Last Backup: Friday, February 04, 2022 10:03	
		Close Help

4. Select the storage destination that contains the MySQL databases that you would like to restore from.

Select From Where To Resto	re
MySQL Database	
B247CBS Host: 10.3.121.17:80	
	daur Cancel Liela
Prev	nous Cancel Help

5. Select to restore the MySQL node from a specific backup job then select the files or folders that you would like to restore. Click **Next** to proceed.

Select You	r Databases To	Be Restored
Select what to restore		
Choose from files as of j	ob 🗸 02/04/2022 🗸 Latest 🗸	
Folders G B247CBS MySQL	Name	Size Date modified 3.23MB 02/04/2022 10:03 240KB 02/04/2022 10:03
Restore raw file	items per p	bage 50 V Page 1/1 V
		Previous Next Cancel Help
	NOTE	
To restore to either original or select the databases only.	alternate location please uns	elect the MySQL data node and

6. Select to restore the MySQL Databases to the Original or Alternate location and click **Next** to proceed.



If Alternate loc<mark>ation is selected, confirm</mark> the **Database name**, **Host**, **Port**, **Username** and **Password** then click **Next**.

Example: To restore and clone a copy of the **world** database on the original server with new name **world_1**

	Alternate database	
Database name	world_1	
Host	localhost	
Port	3306	
Username	root	
Password	•••••	
	Previous	Cancel Help

If you would like to modify the "Verify checksum of in-file delta files during restore" setting, click **Show advanced option**.

Restore databases to Original location Alternate location
Verify checksum of in-file delta files during restore Hide advanced option

7. Confirm the temporary directory path is correct and then click **Restore** to start the restoration.

Temporary directory for storing restore files	
D:\temp Browse	
Previous Restore Cancel Hel	lp

8. Once restoration is finished, "Restore Completed Successfully" will be displayed.

		Re	store		
No. M	lySQL Databas	e			
	2247CBS (Host: 10.	3.121.17:80)			-
	 Restore Complet stimated time left estored lapsed time ransfer rate 	ed Successfully 0 sec 240.41KB (1 file) 4 sec 212.91Kbit/s			E.
					Close Hel
ing MySQL Com	mand Line	Client, you o	an list the res	tored databa	ses and tables.
				lubico	
mysqi> snow da	ilabases;	•			
Hysyi> snow do	+	-			
mysqı> snow d + Database +	+ +	_ _			
Database information	+ + _schema	-			
Database information mysql	+ 	- -			
<pre>mysq1> snow do t Database t information mysq1 performance sakila</pre>	 	-			
<pre>mysq1> snow a + Database + information mysq1 performance sakila sys</pre>					
<pre>mysq1> show a f Database f information mysq1 performance sakila sys world</pre>	 				
<pre>mysq1> snow da t</pre>					
<pre>mysql> show da t</pre>		- - - 2 <i>C</i>)			
<pre>mysql> show da +</pre>		ec)			
<pre>mysql> show da +</pre>		- - ec) sakila;			
<pre>mysql> show da +</pre>	schema schema schema (0.00 se ables in	- ec) sakila; +			
<pre>mysq1> show a f Database f information mysq1 performance sakila sys world f 6 rows in set mysql> show ta f Tables_in_sa </pre>	schema _schema _schema _ (0.00 se ables in 				
<pre>mysql> show a f Database f information mysql performance sakila sys world f cows in set mysql> show ta f Tables_in_sa f actor a</pre>	schema _schema _schema _ _ (0.00 se ables in _ akila	- ec) sakila; +			
<pre>mysql> show a f</pre>	schema _schema _schema 	ec) sakila; + +			
<pre>mysql> show a f</pre>	schema _schema _schema 	- ec) sakila; + 			
<pre>mysql> show da +</pre>	schema schema schema (0.00 se	sakila;			
<pre>mysql> show da +</pre>	schema _schema _schema _ (0.00 se ables in akila	ec) sakila; + 			
<pre>mysql> show da +</pre>	schema _schema _schema _ (0.00 se ables in akila	sakila; +			
<pre>mysql> show da +</pre>	schema _schema _schema _ (0.00 se ables in 	sakila;			
<pre>mysql> show da + Database + mysql performance sakila sys world + 6 rows in set mysql> show ta + 1 Tables_in_sa + actor actor actor actor category city country customer film = ctor</pre>	schema schema schema (0.00 se ables in akila	sakila;			
<pre>mysql> show da Database information mysql performance sakila sys world tows in set mysql> show ta tows in set actor actor_info address category city country customer_lis film_actor film_category film_category </pre>	schema schema schema (0.00 se ables in akila	ec) sakila; + 			
<pre>mysql> show da f</pre>	schema schema schema (0.00 se ables in akila	sakila; + 			
<pre>mysql> show da f</pre>	schema _schema _schema _ (0.00 se ables in akila	sakila; + 			
<pre>mysql> show da</pre>	schema _schema _schema _ (0.00 se ables in _ akila	sakila; + + 			

9.





6.3 Manual MySQL Database Restore

To restore the MySQL databases from your storage destination to a location on disk and manually recover the databases.

1. In the Backup247 Advanced Client (B247PRO) main interface, click the **Restore** icon.



2. Select the backup set that you would like to restore the MySQL Database from.



3. Select the storage destination that contains the MySQL databases that you would like to restore from.

Select From Where To Res	store
MySQL Database	
B247CBS Host: 10.3.121.17:80	
	Previous Cancel Help

4. Select to restore the MySQL database(s) from a specific backup job then select the files or folders that you would like to restore and select the **Restore raw file** option. Click **Next** to proceed.

Choose from files as of	f job 👻 02/04/2022	Latest V			
Folders	i i sakila i i world	Name	Size 3.23M8 24088	Date modified 02/04/2022 10:03 02/04/2022 10:03	
Restore raw file		Items	per page 50	♥ Page 1/1 ♥	

5. Select the location on the local machine you wish to restore the MySQL database files to. Click **Next** to proceed.

Choo	ose Where The Databases To Be Restored
	Restore databases to D:\restored Browse Show advanced option
	Previous Next Cancel Help
Confirm th	e temporary directory path is correct and then click Restore to proceed.
	Temporary Directory

Browse

Previous Restore Cancel Help

Temporary directory for storing restore files
D:\temp

6.

7. After the MySQL database(s) has been restored.

Restore	
MySQL Database	
Restore Completed Successfully Estimated time left 0 sec Restored 240.41KB (1 file) Elapsed time 4 sec Transfer rate 212.91Kbit/s	IQ.

8. Check the location on the local machine to verify the MySQL database files have been restored.

Example: Usin <mark>g Window</mark>	ws File Explorer			
📕 🛃 📮 = MySQL			-	
File Home Share View				~ 🕐
← → → ↑ 📜 → New Volume (D	D:) > restored > MySQL	ٽ ~	Search My	SQL ,0
> 📌 Quick access	Name	Date modified	Туре	Size
	sakila.sql	12/20/2021 4:54 PM	SQL Text File	3,281 KB
> 🤰 This PC	🦉 world.sql	12/20/2021 4:54 PM	SQL Text File	241 KB
> 🧅 New Volume (D:)				
> 🐠 Network				

Recovering MySQL Databases

1. Login to MySQL Server using MySQL Command Line Client and verify the database instance is running.

```
Enter password: *****
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 5.6.31-log MySQL Community Server (GPL)
Copyright (c) 2000, 2016, Oracle and/or its affiliates. All
rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or
its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or 'h' for help. Type 'c' to clear the current
input statement.
mysql> show databases;
+----+
| Database
+----+
| informat<mark>ion schema |</mark>
| mysql
| performa<mark>nce_schema |</mark>
| sys
             ____+
+-
4 rows in set (0.00 sec)
mysql>
```

2. Create the database names that need to be recovered.

Example: sakila, and world

```
mysql> create database sakila;
Query OK, 1 row affected (0.00 sec)
mysql> create database world;
Query OK, 1 row affected (0.00 sec)
```

3. Recover Databases

Repeat the following steps for all databases you wish to restore.

```
mysql> use sakila;
mysql> source D:\restored\MySQL\sakila.sql
Query OK, 0 rows affected (0.01 sec)
Query OK, 148 rows affected (1.9 sec)
Records: 148 Duplicates: 0 Warnings: 0
mysql> use world;
mysql> source D:\restored\MySQL\world.sql
Query OK, 0 rows affected (0.00 sec)
Query OK, 4079 rows affected (0.03 sec)
Records: 4079 Duplicates: 0 Warnings: 0
Query OK, 0 rows affected (0.01 sec)
```

4. Check the database status

```
Example: Listing the tables in the database using show tables
```

```
mysql> show databases;
+----+
| Database
+----+
| information schema |
| classicmodels
| mysql
| performance_schema |
| sakila
                  | world
                  +----+
6 rows in set (0.00 sec)
mysql> show tables in world;
+----+
                  24/7
| Tables_in_world |
+----+
| city
| country
| countryl<mark>anguage |</mark>
+----+
3 rows in set (0.00 sec)
mysql> show tables in sakila;
+-----+
| Tables i<mark>n sakila</mark>
+----+
| actor
| actor in<mark>fo</mark>
| address
| category
| city
| country
| customer
| customer list
| film
| film actor
| film category
| film list
| film text
| inventory
| language
| nicer but slower film list
| payment
| rental
| sales by film category
| sales_by_store
| staff
| staff list
| store
+----
             _____+
23 rows in set (0.00 sec)
```

7 Contact Backup247

7.1 Technical Assistance

To contact Backup247 support representatives for technical assistance, visit our website https://backup247.com.au/Support.php

7.2 Documentation

Documentations for all Backup247 modules, user guide and QuickStart are available on our website. Alternatively, email us on support@backup247.com.au for technical demo.

