

Full and Differential Report DB Backup and Restore



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1. Report DB Backup Enhancement

1.1. Summary

There are 2 types of Report DB Backup Jobs currently provided:

- Differential Backup
- Full Backup

1.2. Prerequisites of Report and Config Backup

- Motadata should be up and running.
- FTP should be accessible via Motadata.
- Motadata Report DB Backup Job Plugin version 1.7 should be installed
- Go to first level Motadata directory on the server where Click-house is installed.
 If clickhouse-store.zip and clickhouse-store are already present then delete them.
- Download the new clickhouse-store utility from the deliverables
- Clickhouse-Store.zip should be placed in the first level motadata directory and Unzip it.
 - Place db-engine-conf.yml file at /motadata/motadata/config and add ip of datanode in host field.

1.3. Differential Backup Job

This job contains the Report DB backup of the days incrementally for the entire month. This is explained in the following scenarios:

Scenario 1:

When the job is called on the first day of the month e.g.) 01-11-2021 05:00 Hrs. it will contain data and till the current timestamp when it is triggered.

Start Date		
01-11-2021		

Scenario 2:

When the job is called on the 2nd, 3rd and so days, the following will be the backup data





When the Triggered Date is 06-11-2021 and time is 05:00 AM – It will contain date from 01-11-2021 00:00 AM to 06-11-2021 05:00 AM

Start Date					
01-11-2021	02-11-2021	03-11-2021	04-11-2021	05-11-2021	06-11-2021

Scenario 3:

Job called on the last day, it will contain data of the entire month to the current timestamp when the job was triggered.

When the Triggered Date is 30-11-2021 and time is 05:00 AM – It will contain date from 01-11-2021 00:00 AM to 30-11-2021 05:00 AM

StartDate					
01-11-2021	02-11-2021	03-11-2021	04-11-2021	29-11-2021	30-11-2021

Note: Need to make differenctial backup to run at 00:10 AM and full backup at 02:00 AM

1.4. How to take differential Backup:

Step 1: Login to Motadata GUI and go to Actions.

Step 2: Create an email action with name "RPD_BKP_email"

Step 3: Go to Scheduler and Click on current date or a future date

Step 4: Create a new Motadata Report DB Backup Job

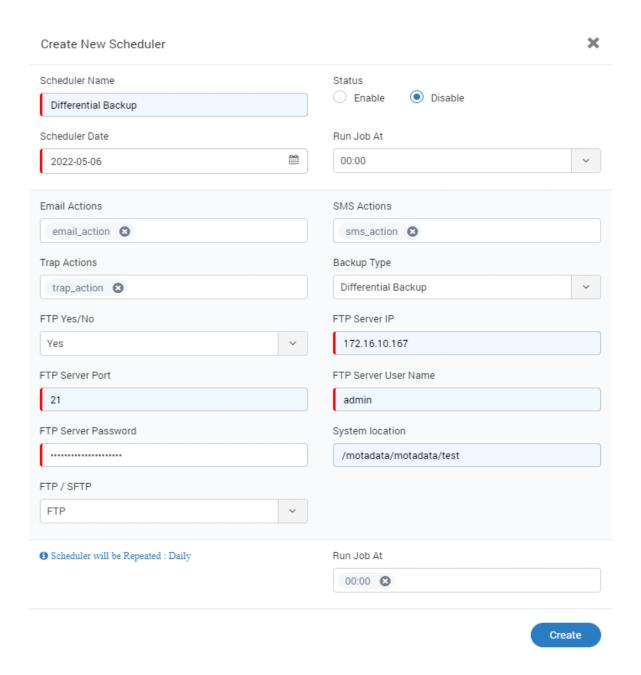


Name	
Motadata Report DB Archival Job	↑ Add
Monitor Maintenance Job	◆ Add
Motadata Report DB Backup Job	→ Add
Business SLA Report Job	↑ Add
Motadata DR Backup Job	↑ Add
Auto Network Discovery Job	◆ Add
Report Job	↑ Add
NCM Device Backup Job	↑ Add
Monitor Polling Issue Report Job	↑ Add
Motadata FullText Data Retention Job	↑ Add
Motadata Data Retention Job	→ Add
Topology Builder Job	→ Add
Motadata Config Backup Job	◆ Add

<u>Note:</u> In the whole application, there can only be one scheduler configured for Differential and full type of backup each. More than one scheduler of taking full backup is not allowed. Similar is for Differential Backup as well.

Step 5: Make the necessary configurations as shown below:





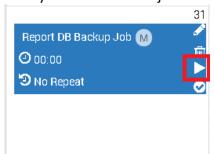
FTP Configurations

- FTP On/Off: Configure it ON if user wants to transfer the backup to remote location via FTP protocol. If configure YES, then add the port number, username and password of the FTP server
- **System Location**: Mention the desired path where user wants to store the backup on the server, where report DB is installed.
- Email Action, SMS Action, and Trap Action: Configure this action as created in the action module. Email and SMS Actions are mandatory.
- Backup Type: This decides the duration for which user wants to take the backup.





Step 6: Once the job is created you can run the job.



Step 7: Once backup is taken it will be stored on configured system location and FTP location.

```
root@ubuntu:/motadata/motadata/test# ll
total 3357340
                                                            1676 Apr 19 00:01 ./

250 Feb 14 16:30 ../

1360 Apr 5 17:44 REPORTDB/

1150 Apr 5 17:16 REPORTDB_DIFFERENTIAL_BACKUP_2022-04-05_17-15-57.tar.gz

15287 Apr 5 17:41 REPORTDB_DIFFERENTIAL_BACKUP_2022-04-05_17-41-38.tar.gz

3560 Apr 6 00:04 REPORTDB_DIFFERENTIAL_BACKUP_2022-04-06_00-04-10.tar.gz
drwxr-xr-x 1 root root
drwxr-xr-x 1 root root
drwxr-xr-x 1 root root
                                                   22951150 Apr
                          root root
                                                   23005287 Apr
25473560 Apr
                                                                               8 00:00 REPORTDB DIFFERENTIAL BACKUP 2022-04-08 00-00-08.tar 9 00:03 REPORTDB DIFFERENTIAL BACKUP 2022-04-09 00-03-27.tar 10 00:00 REPORTDB DIFFERENTIAL BACKUP 2022-04-10 00-00-22.tar
                           root root
                                                    32766286 Apr
                          root root
                                                   37066096 Apr
40506006 Apr
                           root root
                                                    44213379 Apr
                                                                                     00:02
                                                   52509691 Apr
58779500 Apr
                           root root
                                                                                     00:03
                                                                               13 00:00
14 00:04
                           root root
                           root root
                                                   63307087 Apr
                           root root
                                                    67548721 Apr
                                                                                     00:03
                                                    71859290 Apr
75960512 Apr
                                                                               16 00:06
17 00:00
                           root root
                           root root
```

Note: - Scheduler will be Repeated/Scheduled automatically for every daily/day for current year

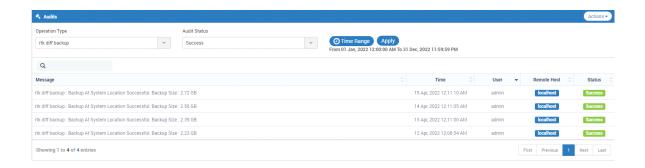
1.5. Success Mail of Differential Backup



1.6. Differential Backup Audit







1.7. Differential Backup Backend Logs

```
06-May-2022 01:54:37 PM INFO [MOTADATA/Report DB Backup Common Util]:Creating Achival ZIP for :: flow
06-May-2022 01:54:38 PM INFO [MOTADATA/Report DB Backup Common Util]:Zip Completed of table :: flow
06-May-2022 01:54:38 PM INFO [Archival Report]:Tip Created Successfully
06-May-2022 01:54:38 PM INFO [Archival Report]:Tip Created Successfully
06-May-2022 01:54:38 PM INFO [Archival Report]:Backup Successfully
06-May-2022 01:54:38 PM INFO [Archival Report]:Backup Successfully
06-May-2022 01:54:38 PM INFO [Archival Report]:Backup Successfully
06-May-2022 01:54:38 PM INFO [Archival Report]:Successfully detach of::tbl_raw_flow_Vsand partition::202204
06-May-2022 01:54:38 PM INFO [Archival Report]:Successfully detach of::tbl_raw_flow_Vsand partition::202203
06-May-2022 01:54:38 PM INFO [Archival Report]:Successfully detach of::tbl_raw_flow_Vsand partition::202203
06-May-2022 01:54:38 PM INFO [Archival Report]:Successfully detach of::tbl_raw_flow_Vsand partition::202203
06-May-2022 01:55:55 PM DEBUG [LOGGER for Restore of report db]:Starting archival process
06-May-2022 01:55:55 PM DEBUG [LOGGER for Restore of report db]:Starting archival process
06-May-2022 01:55:55 PM DEBUG [LOGGER for Restore of report db]:Unzip completed of ::/motadata/Clickhouse-Store/CLICKHOUSE-RESTORE/2022-05-06_13:54_172.16.8.217_ARCHIVAL_
06-May-2022 01:55:55 PM DEBUG [LOGGER for Restore of report db]:Maying of :tbl_raw_flow_Vs successfully
06-May-2022 01:55:55 PM DEBUG [LOGGER for Restore of report db]:Maying of :tbl_raw_flow_Vs successfull
06-May-2022 01:55:50 PM DEBUG [LOGGER for Restore of report db]:Maying of :tbl_raw_flow_Vs successfull
06-May-2022 01:55:50 PM DEBUG [LOGGER for Restore of report db]:Maying of :tbl_raw_flow_Vs successfull
06-May-2022 01:55:00 PM DEBUG [LOGGER for Restore of report db]:Command executed successfully : clickhouse-client --password TRACEorg@2010 --query="Alter table tbl_raw_flow_Vs attach part '2022001/20220013 33 38 0" "
06-May-2022 01:55:00 PM DEBUG [LOGGER for Restore of report db]:Command executed succe
```





2. Full Backup Job

Full Backup Job - The Report DB complete backup is considered for all the data from the beginning of data in the ReportDB till the last date-time of the previous month.

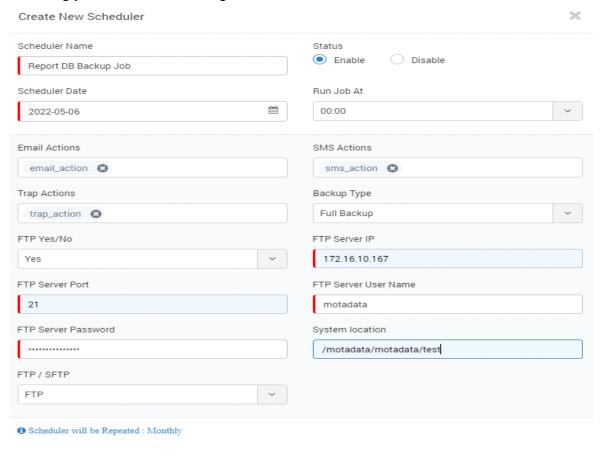
The full back will contain the data from the beginning to previous month before the End date, so if we run the job on 01-11-2021 irrespective of the time it will contain only backup till the previous month

If we are taking the full backup job on 01-11-2021 00:01:00 AM, it will contain all the data from the beginning in our example from 01-01-2018 when the db. was created till 31-10-2021.

Note: The time / scheduling of the job run is irrelevant on a particular day in that month or the hour of the day it is performed. It is recommended to configure this job on 1st of every month and at 02:00 Hrs.

2.1. Steps to take Full Backup

Step 1: Follow all the differential backup steps, only change Backup type while creating job. Make the changes as below





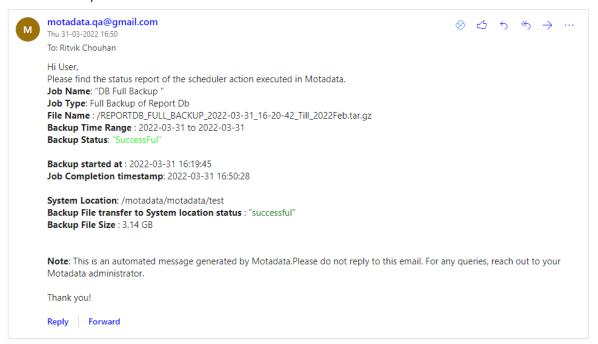


Notes:

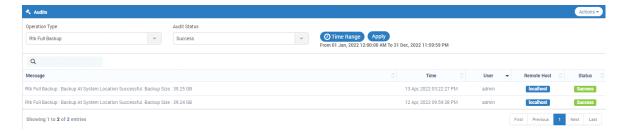
- Scheduler will be Repeated/Scheduled automatically for every month for current year.
- 2. Make sure once differential backup complete then after full backup job should execute .

2.2. Success Mail of Full Backup:

DB Full Backup



2.3. Full Back-up Audit



2.4. Full Back-up Backend Logs

```
==> 31-March-2022.Report-Backup-Restore-DEBUG.log <==
31-March-2022 04:20:42 PM DEBUG [MOTADATA/Report DB Backup Common Util]:Creating ZIP

==> 31-March-2022.Report-Backup-Restore-INFO.log <==
31-March-2022 04:20:42 PM INFO [MOTADATA/Report DB Backup Common Util]:Clossing Tar Archive OutputStream

==> 31-March-2022.Report-Backup-Restore-DEBUG.log <==
31-March-2022.Report-Backup-Restore-DEBUG.log <=
31-March-2022.Report-Backup-Restore-DEBUG.log <==
31-March-2022.Report-Backup-Restore-DEBUG.log <=
31-March-2022.Report-Backup-Restore-DEBUG.log <==
31-March-2022.Report-Backup-Restore-DEBUG.Report-Backup Common Util]:Creating ZIP

==> 31-March-2022.Report-Backup-Restore-DEBUG.Report-Backup-Restore-DEBUG.Report-Backup-Restore-DEBUG.Report-Backup-Restore-DEBUG.Report-Backup-Restore-DEBUG.Report-Backup-Restore-DEBUG.Report-Backup-Restore-DEBU
```





3. Restore Full and Differential Backup Job

The Report DB restore utility has to be improved for the changes on the Full & Differential Backup. The **main objective** is for the restore, we need the **latest full backup ZIP file** along with the **latest differential backup ZIP file**, where the data in the backups should be in a Sequence, based on Month.

3.1. Pre-requisite:

• The Datanode must not contain any existing data minimum date of the data should be 00-00-0000.

Scenario 1:

The current date is November 11,2021, the user has the previous full backup zip - (From 1st Jan, 2021 to till Oct 31, 2021) and the differential backup (Nov 1 – Nov 10). When restore is done the user will have to provide the full back zip and Differential zip (Jan, 1 2021 to Nov, 10 2021) and then the Clickhouse will be restored till the Nov 10.

Scenario 2:

The current date is November 11, 2021. The user doesn't have the full-back zip but only has only the differential zip. The system will allow the restore, and the necessary message will be communicated.

Scenario 3:

The current date is November 11, 2021. The user has the full back zip (data till Oct 31, 2021), but does not have the latest differential zip. The system will allow the restore, but the data restored will contain only till Oct 31.

Scenario 4:

The current date is November 11, 2021. The user provides Full backup zip (containing data till August 31, 2021) and a differential backup of September 2021. If the user runs the restore with these files, the system will allow the restore and data will be available till Sept 2021.

Scenario 5:

The current date is November 11, 2021. The user provides Full backup zip (containing data till August 31, 2021), and differential backup of October 2021. If the user runs the restore with these backup files, the system will not allow the restore because the differential backup and full backup are not in sequence.



3.2. Full & Differential Backup Restore when database gets crashed or single table missing

- For restore full and differential backup. Below are the prerequisites:
- Deploy/Install new database server with version 7.3.047
- Do not connect with Master server
- Clickhouse service on running state
- Copy both Differential and Full backup on path of clickhouse server (both must be in Sequence)

/motadata/Clickhouse-Store/CLICKHOUSE-RESTORE

Once both files placed on defined path run "**ReportDBBackupRestoration.sh**" on path /motadata/Clickhouse-Store

```
@4-April-2022 05:49:17 PM INFO [GUI/Report DB Backup Restoration ]:Looking for backup in : /motadata/Clickhouse-Store/CLICKHOUSE-RESTORE
04-April-2022 05:49:17 PM INFO [GUI/Report DB Backup Restoration ]:Total 2 backup files found
04-April-2022 05:49:17 PM INFO [GUI/Report DB Backup Restoration ]:backup started for file : /motadata/Clickhouse-Store/CLICKHOUSE-RESTORE/REPORT
DB FULL BACKUP 2022-03:31 16-20-42 Till 2022Feb.tar.gz At Mon Apr 04 17:49:17 IST 2022
04-April-2022 05:50:45 PM INFO [MOTADATA/Report DB Restore Common Util]:clossing Tar Archive InputStream
04-April-2022 05:50:45 PM INFO [MOTADATA/Report DB Restore Common Util]:clossing Tar Archive InputStream
04-April-2022 05:50:45 PM INFO [MOTADATA/Report DB Restore Common Util]:clossing Tar Archive InputStream
04-April-2022 05:50:45 PM INFO [MOTADATA/Report DB Restore Common Util]:Total 292 Metadata files found
```

Restore Started for Full Backup File.

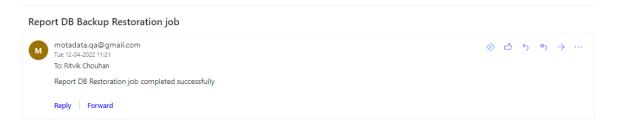
```
04-April-2022 05:51:08 PM INFO [GUI/Report DB Backup Restoration]:backup completed for file: /motadata/Clickhouse-Store/CLICKHOUSE-RESTORE/REPORTDE FILE DACKUP 2022-03-31 [1-02-04-2] Till 2022-69 tar-g. At Mon Apr 04 17:51:08 IST 2022 |
04-April-2022 05:51:08 PM INFO [GUI/Report DB Backup Restoration]:backup started for file: /motadata/Clickhouse-Store/CLICKHOUSE-RESTORE/REPORT DB FERRENTIAL BACKUP_202-03-31 [7-30-45.tar-gz At Mon Apr 04 17:51:08] IST 2022 |
04-April-2022 05:51:41 PM INFO [MOTADATA/Report DB Restore Common Util]:clossing Tar Archive InputStream |
04-April-2022 05:51:41 PM INFO [MOTADATA/Report DB Restore Common Util]:Min Date Found: 2022-03-01 |
04-April-2022 05:51:42 PM INFO [MOTADATA/Report DB Restore Common Util]:Max date from clickhouse: 2022-03-02-28 |
04-April-2022 05:51:42 PM INFO [GUI/Report DB Backup Restoration]:The Differential is in sequence with the Clikchouse DB
```

Restore Completed for Full Backup File and started for Differential File

```
04-April-2022 05:52:15 PM INFO [GUI/Report DB Backup Restoration ]:backup completed for file : /motadata/Clickhouse-Store/CLICKHOUSE-RESTORE/REPORT DIFFERENTIAL BACKUP 2022-03-31 17-30-45.tar.gz At Mon Apr 04 17:52:15 IST 2023 04-4pril-2022 05:52:15 PM INFO [GUI/Report DB Backup ssh]:Motadata configurations : (password=motadata, host=172.16.8.70, user=root) 04-April-2022 05:52:18 PM INFO [GUI/Report DB Backup ssh]:Motadata configurations : (password=motadata, host=172.16.8.70, user=root) 04-April-2022 05:52:18 PM INFO [GUI/Report DB Backup ssh]:Connection : jdbc:h2:tcp://172.16.8.70/configdb;DATABASE_TO_UPPER=false;IGNORECASE=TRUE;MOt=PostgresQL;AUTO_RECONNECT=TRUE;MV_STORE=FALSE;MVCC=FALSE
```

Restore Completed for Differential File

3.3. Restore Success Mail





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