Oracle® DIVArchive

Database User's Guide

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Oracle DIVArchive Database User's Guide, Release 7.5

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Contents

4 Installing and Configuring the DIVArchive Backup Service

5 Operations and Monitoring

6 Troubleshooting

7 Frequently Asked Questions

List of Tables

Preface

This document describes installation of the Oracle DIVArchive Database, DIVArchive Database Migration and the operational guidelines for the Oracle DIVArchive Backup Service. Included are installation, configuration, control, and monitoring procedures for the DIVArchive Backup Service in a typical Oracle DIVArchive Suite environment using the DIVArchive Control GUI and Configuration Utility.

Audience

This document is intended for the Oracle Installation Team and System Administrators.

Documentation Accessibility

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Related Documents

For more information, see the Oracle DIVArchive documentation set for this release located at https://docs.oracle.com/en/storage/#csm.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1 Introduction

This chapter describes an overview of the Oracle DIVArchive databases and the DIVArchive Backup Service, and includes the following information:

DIVArchive Oracle Database and Backup Service Overview

The DIVArchive Oracle Database and Backup Service components are installed as an integral part of the standard DIVArchive system installation. The components are typically installed on the same server as the Oracle DIVArchive Manager.

The Oracle Database is backed up using the RMAN components that are distributed as part of the Oracle Database package.

The DIVArchive Backup Service manages and monitors the entire backup process. You can configure scheduled backups in the Backup Service's configuration file.

DIVArchive uses a Metadata Database to support complex object workflows. The DIVArchive Backup Service ensures reliability and monitoring of both the Oracle Database backups and Metadata Database backups.

DIVArchive 7.5 in a Windows environment only supports DIVAOracle database package `OracleDivaDB_3-0-0_12_1_0_2_0_SE2_Windows_64-bit.zip` and later. No previous DIVArchive database package will work with DIVArchive 7.5 and later.

DIVArchive 7.5 in a Linux environment only supports DIVAOracle database package `OracleDivaDB_3-0-0_12_1_0_2_0_SE2_OEL7_x86_64.sh` and later.

Caution: See the *Oracle DIVArchive Supported Environments Guide* in the *Oracle DIVArchive 7.5 Core documentation* library to confirm disk partitioning and recommended block sizes before proceeding.

Complex Objects

By default, objects archived with more than 1,000 files are considered *Complex Objects*. Complex objects have Metadata stored in both the Oracle Database and Metadata

Database.You can configure the threshold on the number of files before an object is considered complex in the Manager service configuration file. You can only store complex objects in AXF format within the DIVArchive system. You must use the DIVArchive Backup Service to back up the Oracle Database and Metadata Database when complex object workflows are used.

DIVArchive Backup Service

Caution: *When using complex objects, you are strictly required to use the DIVArchive Backup Service*. The DIVArchive Backup Service is the *only* component backing up the Metadata Database and removing outdated Metadata files. When a Delete request for a complex object is sent and processed, the data is removed from the Oracle Database, but the Metadata Database file is not deleted. It is removed by the Backup Service after the configured clean up period (defined by the *Recovery Period* parameter) has been reached.

The DIVArchive Backup Service is the component responsible for backing up the DIVArchive system database. The DIVArchive Backup Service uses the Oracle Secure Backup Scripts to perform Oracle Database backups. The Backup Service has a scheduler function enabling customizable backup schedules. The DIVArchive Backup Service has features to configure separate backup intervals for the Oracle Database and Metadata Database.

If a database or system failure (or both) occurs, where restoring from a system backup is necessary, restoration of a stored backup is done manually and should *only* be performed by Oracle Support personnel.

Oracle Database backups and Metadata Database backups are incrementally replicated to one or more remote back up systems by the DIVArchive Backup Service. depending on your configuration.

The Backup Service files are located in the `%DIVA_HOME%\Program\conf\db_backup.conf`, and the `%DIVA_HOME%\Program\DBBackup` folders.

The Backup Service monitors and sends backup status messages to the DIVArchive Manager. The Manager relays any errors and warning messages received from the service to all connected Control GUIs that are listening for messages from the Manager. The Manager records all events to the Events Log. The Control GUI displays the messages in a dialog box. If no Control GUIs are connected at the time of the error or warning, no error dialog boxes are displayed.

Before DIVArchive 7.0, you were required to install the Oracle Secure Backup Scripts separately from DIVArchive System installation. Starting with DIVArchive 7.0 no separate installation of Oracle Secure Backup Scripts are required. All Oracle Secure Backup Scripts are now installed during the standard DIVArchive installation and are located in the `%DIVA_HOME%\Program\DBBackup\rman\bin` folder.

DIVArchive Oracle Database

The DIVArchive Backup Service uses Oracle's RMAN Database Backup Utility to generate Oracle Database backups. Full and incremental back up files are generated in the `DB_BACKUP_LOCATION` as defined in the configuration file.

By default, the DIVArchive Backup Service generates a full database backup every 24 hours, and an incremental backup every 15 minutes. The backup files are compressed with 7zip tool with the `.gz` extension. See Chapter 4 for a list of prerequisites.

The Backup Service incrementally replicates all the backup files to all configured `DB_BACKUP_REMOTE_DESTINATIONS` as set in the configuration file. All of the remote backup destinations must be RSYNC modules. See Chapter 4 for information on configuring an RSYNC module.

Oracle recommends having the same backup location on all main and remote backup destination systems. For example, if the `DB_BACKUP_LOCATION` is set to `H:\oraback\`, on the main system, you must have the Backup Service copy the backups to the same location on all remote backup destination systems. Therefore, you must configure the RSYNC module to `H:\oraback\` on all remote backup destination systems. If the paths are different, the correct Oracle Secure Backup paths must be mentioned and updated in the Oracle RMAN Backup Tool during failover. See Chapter 5 for more details.

DIVArchive Metadata Database

The Metadata Database is a binary file in the file system. To support the *Recovery Window* for the Metadata Database, the DIVArchive Backup Service uses the following techniques:

- Whenever a new complex object is archived, the Manager creates complex object Metadata files in the ***Metadata Database Path*** you configured in the Configuration Utility.
- By default, the DIVArchive Backup Service backs up Metadata files inside the Metadata Database every 15 minutes. The Metadata file is transferred to all backup systems shortly after creation so that file alterations do not influence the backup copies.

> **Note:** If there is a failure backing up to one of the configured Backup Systems, the Backup Service will continue to retry the failed backup until all backups to all configured Backup Systems are successful. Metadata Files are not marked as being successfully backed up until the backup to all configured Backup Systems is successful.

- During every Metadata Database backup, the Backup Service searches for any complex object Metadata files that are not backed up, and replicates them to all of the `FBM_BACKUP_REMOTE_DESTINATIONS` you configured in the configuration file. *All of the remote backup destinations must be RSYNC modules*. See Chapter 4 for information on configuring a RSYNC module.

Oracle recommends having the same *Metadata Database Location* on all main and remote backup destination systems. For example, if the *Metadata Database Location* is set to `H:\metaback\`, on the main system, you must have the Backup Service copy the Metadata Database backups to the same location on all remote backup destination systems. Therefore, you must configure the RSYNC module to `H:\metaback\` on all remote backup destination systems. If the paths are different, you must update the *Metadata Database Location* in the Oracle Database after an Oracle Database restore during failover. See Chapter 5 for more details on failovers.

DIVArchive Backup Service Recommended Practices

The following are recommended practices for the DIVArchive Backup Service:

- The Backup Service must be installed on the same server as the DIVArchive Manager and Oracle Database.
- At least two Backup Systems are always required to store backups. Oracle DIVArchive Actor computers can serve dual purposes and be used as both backup computers and Actor computers.
- Oracle Incremental backups should be performed every 15 minutes.
- Metadata Database backups should be performed every 15 minutes.
- The Backup Recovery Window should be set to value greater than, or equal to, 10 days.
- The Backup Clean-up function should be performed every 24 hours.
- Oracle Full Backups should be performed every 24 hours.
- If required, restoration of a system backup must only be performed by Oracle Support.
- Oracle Database data files, Oracle Database backups, and the Metadata Database must be stored on RAID disk array.
- You must allocate equal backup disk space on the main and all remote backup systems.

2

Installing and Configuring the Oracle Database

This chapter describes installation and configuration of the DIVArchive databases and Backup Service and includes the following information:

Overview

The DIVArchive Oracle Database is distributed as a compressed (`.zip`) file in Windows, and as a bash script (`.sh`) in Linux. They are only available in 64-bit releases. The installation process is identical for both releases and the release you install depends on the computer's operating system.

You must verify the existing Oracle database release before upgrading a system to DIVArchive 7.5. The minimum release level for DIVArchive 7.5 is Oracle release 12.1. You can verify the release level by navigating to `C:\app\oracle` and opening the `VERSION.TXT` file. The Oracle release number is displayed in the file.

Exporting and Importing the Database Dump Files

Use the procedures outlined in the following sections to perform export and import operations on the Oracle Database.

Exporting the Database Dump Files from the Source Computer

You must perform the following procedure on the source computer:

1. Open `sqlplus` and log in as the `sys` user.
2. Execute the following commands to create the directory object:

```
CREATE OR REPLACE DIRECTORY {directory_object_name} AS {'TargetPath'};

GRANT READ,WRITE ON DIRECTORY {directory_object_name} TO {source_username};
```

3. Open a command prompt and execute the following command to export to the dump file:

```
expdp {source_username}/{source_user_password} schemas={source_username}
flashback_time=systimestamp DIRECTORY={directory_object_name} dumpfile={dump_
file_name} logfile={log_file_name}
```

The following is an example of the procedure previously outlined:

1. Open `sqlplus` and log in as the `sys` user.
2. Execute the following commands to create the directory object:

   Use the following command in Windows:

```
CREATE OR REPLACE DIRECTORY diva_dpump_dir AS 'H:\Support\DUMPS';
```

   Use the following command in Linux:

```
CREATE OR REPLACE DIRECTORY diva_dpump_dir AS '/u05/support/DUMPS';
```

   Execute the following commands regardless of the operating system:

```
GRANT READ,WRITE ON DIRECTORY diva_dpump_dir TO DIVA;
exit;
```

3. Open a command prompt and execute the following command:

```
expdp DIVA/password schemas=DIVA flashback_time=systimestamp directory=diva_
dpump_dir dumpfile=diva_db.dmp logfile=diva_exp.log
```

Importing the Database Dump File to the Destination Computer

Perform the following procedures on the destination computer:

1. Open `sqlplus` and log in as the `sys` user.
2. Execute the following commands to create the directory object:

```
CREATE OR REPLACE DIRECTORY {directory_object_name} AS {'TargetPath'};

GRANT READ,WRITE ON DIRECTORY {directory_object_name} TO { destination_
username};
```

3. Open a command window and copy the exported dump file to the `{'TargetPath'}`.
4. Navigate to the `%DIVA_HOME%\program\database\core\install` folder in your DIVArchive installation.
5. Execute the import command as follows:

```
impdp {destination_username}/{user_password} transform=OID:n:type
DIRECTORY={directory_object_name} dumpfile={dump_file_name} table_exists_
action=replace REMAP_SCHEMA={source_username}:{destination_username}
logfile={log_file_name}
```

The following is an example of the procedure previously outlined:

1. Open `sqlplus` and log in as the `sys` user.

2. Execute the following commands to create the directory object:

   Use the following command in Windows:

   ```
   CREATE OR REPLACE DIRECTORY diva_dpump_dir AS 'H:\Support\DUMPS';
   ```

   Use the following command in Linux:

   ```
   CREATE OR REPLACE DIRECTORY diva_dpump_dir AS '/u05/support/DUMPS';
   ```

   Execute the following commands regardless of the operating system:

   ```
   GRANT READ,WRITE ON DIRECTORY diva_dpump_dir TO DIVA;
   exit;
   ```

3. Use the following procedures to copy the dump file and create a user:

   Execute the following in Windows environments:

   1. Copy the exported dump file to the `H:\Support\DUMPS` folder.
   2. Navigate to the `%DIVA_HOME%\program\database\core\install` folder in your DIVArchive installation.
   3. Create a DIVArchive database user with the following command:

      ```
      create_diva_user.bat syspass DIVA2 divapass -useronly
      ```

   Execute the following in Linux environments:

   1. Copy the exported dump file to the `/u05/support/DUMPS` directory.
   2. Navigate to the `%DIVA_HOME%/Program/Database/Core/Install/` directory in your DIVArchive installation.
   3. Create a DIVArchive database user with the following command:

      ```
      create_diva_user.sh syspass DIVA2 divapass -useronly
      ```

4. Open a command prompt and execute the following:

   ```
   impdp DIVA2/pass transform=OID:n:type DIRECTORY= diva_dpump_dir dumpfile=
   diva_db.dmp table_exists_action=replace REMAP_SCHEMA=DIVA:DIVA2 logfile=diva_
   imp.log
   ```

Uninstalling the Existing DIVArchive Oracle Database (if required)

Before installing the new DIVArchive Oracle Database, you may be required to uninstall an existing database and database engine. If Oracle Database is already installed on the computer, then you must remove the existing database and database engine.

Uninstalling the Database in Windows

Use the following procedure to uninstall the existing database in Windows environments:

> **Caution:** Use the same DIVArchive Oracle Database package to uninstall the database that was used to install it.

1. Stop all running DIVArchive services.

2. Export the existing database contents using the procedures previously described.

   Caution: Confirm the export completed successfully before continuing.

3. Extract the original DIVArchive database `.zip` file used to perform the installation.
4. For DIVArchive database package releases 2.3.4 and earlier, use the following commands in the exact sequence shown:

   ```
   uninstall_database.cmd

   uninstall_engine.cmd
   ```

5. For DIVArchive database packages release 3.0.0 and later, execute `C:\app\Oracle\product\12.1.0\db_home1\deinstall\deinstall.bat` and follow the displayed instructions.

Uninstalling the Database in Linux

Use the following procedure to uninstall the existing database (package release 3.0.0 and later) in a Linux environment:

1. Log in as the Oracle operating system user.
2. Open a terminal window.
3. Export the existing Oracle database.
4. Execute `$ORACLE_HOME/deinstall/deinstall` and follow the displayed instructions.

Installing the DIVArchive Oracle Database in Windows

You must log in to the computer as an Administrator. After you have backed up and uninstalled the existing database (see the previous sections in this chapter), use the following procedure to install the new database:

1. Locate the latest release of the DIVAOracle database package for Windows and unzip it. See the DIVArchive Oracle Database and Backup Service Overview section in Chapter 1 for supported DIVAOracle database package releases.
2. Execute `install.bat` to start the installation.
3. Follow the prompts through the wizard to complete the installation.
4. Import the previously exported data into the new database using the procedure previously described.

Assuming no errors occurred, you have successfully installed the database and imported the existing data from the original database.

Installing the DIVArchive Oracle Database in Linux

Before running the installer verify the following is complete:

- Yum is configured to connect to the latest release of Oracle Linux.
- The recommended partitions for the Oracle Database exist. Oracle recommends partitions that dedicate the space to the Oracle Database.

- /u01 partition for the Oracle Binaries
- /u02 partition for the Oracle Database files (8 KB cluster size recommended)
- /u03 partition for the Oracle Archive Logs (4 KB cluster size recommended)
- /u04 partition for the Oracle database backups (64 KB cluster size recommended)

See the *Oracle DIVArchive Installation and Configuration Guide* in the *Oracle DIVArchive 7.5 Core documentation* library for partitioning information.

To begin installation, locate the latest release of the DIVAOracle database package for Linux, execute it as root, and follow the displayed instructions. See the DIVArchive Oracle Database and Backup Service Overview section in Chapter 1 for supported DIVAOracle database package releases.

Using the create_diva_user Script

The create_diva_user script has been enhanced to provide greater functionality, and is located in the %DIVA_HOME%\Program\Database\Core\Install folder. This section describes the use of the script for creating user accounts and assigning, or updating, the user passwords. The following is the general script syntax.

Use the following syntax in Windows environments:

```
create_diva_user.bat {db_sys_passwd} {diva_dbuser} {diva_dbuser_password} oracle_
connection [-useronly|-tablesonly] [-customer_tablespaces tables_tablespace
indexes_tablespace temp_tablespace]
```

Use the following syntax in Linux environments:

```
./create_diva_user.sh {db_sys_passwd} {diva_dbuser} {diva_dbuser_password} oracle_
connection [-useronly|-tablesonly] [-customer_tablespaces tables_tablespace
indexes_tablespace temp_tablespace]
```

To assign a new password, or change an existing password, in Windows environments use the following command:

```
create_diva_user.bat {DIVA|SYS} {current_password} {new_password} -orapwd
```

To assign a new password, or change an existing password, in Linux environments use the following command:

```
./create_diva_user.bat {DIVA|SYS} {current_password} {new_password} -orapwd
```

The following are the mandatory parameters used in the previous commands:

db_sys_passwd
This parameter is the Oracle sys account password.

diva_dbuser
This parameter is the user name being created.

diva_dbuser_password
This parameter is the associated user password.

oracle_connection
This parameter is the Oracle TNS service name or Oracle connection string. For example, IP_ADDRESS:PORT/ORACLE_SERVICE_NAME.

DIVA|SYS
You must use either DIVA or SYS to reset the password for that account in the password file.

new_password
This parameter is the new password for the user.

current_password
This parameter is the current password. If there is no current database password, then enter a new password for this parameter.

The following are the optional parameters used in the previous commands:

-useronly
This option only creates the database user and no database objects.

-tablesonly
This option only creates the database objects for the given user.

-custom_tablespaces
This option create the user using customer tablespaces.

tables_tablespace
This option creates the tablespaces for the tables.

indexes_tablespace
This option creates the tablespaces for indexes.

temp_tablespace
This option creates the database temporary tablespace.

3

Migrating the DIVArchive Oracle Database

This chapter describes the procedures to migrate DIVArchive releases with Oracle 11*g* installed. Typically this procedure is performed to upgrade installations with legacy DIVArchive installations to a current release. *See Appendix A for Oracle DIVArchive options and licensing information*.

Oracle Database Migration Procedure from 11.2 to 12.1

You use the procedures in this section to migrate the DIVArchive Oracle database from release 11.2 to 12.1.

Procedures Conducted on the Source Computer (DIVArchive Manager with Oracle Database 11.2)

Use the following procedure to export the DIVArchive Manager and file system data from the source computer:

1. Stop all running DIVArchive services, and then export the database to a dump file. See Exporting the Database Dump Files from the Source Computer for exporting instructions.
2.
3. Copy the dump file from the source computer to the target computer.

Procedures Conducted on the Destination Computer (DIVArchive Manager with Oracle Database 12.1)

Use the following procedure to import the DIVArchive Manager and file system data to the destination computer:

1. Stop all running DIVArchive services.
2. Install Oracle 12.1 on the destination computer. See Installing the DIVArchive Oracle Database in Windows,or Installing the DIVArchive Oracle Database in Linux for instructions depending on your operating system environment.
3. Import the database dump file on the destination computer. See Importing the Database Dump File to the Destination Computer for instructions.

4

Installing and Configuring the DIVArchive Backup Service

This chapter describes installing and configuring the DIVArchive Backup Service and includes the following information:

DIVArchive Backup Service Overview

The DIVArchive Backup Service enables configuration of scheduled backups through its configuration file, and manages and monitors the entire backup process. *It is strictly required to use the DIVArchive backup service when using complex objects*.

The service uses existing DIVArchive Backup scripts (these scripts use the Oracle RMAN tool) to generate full database backups, and incremental database backups of the Oracle Database. Generated Oracle Database backup files and Metadata Database files created by the Manager (when complex objects are created) are incrementally replicated by the Backup Service to remote backup servers using the RSYNC tool.

DIVArchive Backup Service Prerequisites

The following components and services are prerequisites for using the DIVArchive Backup Service component. CYGWIN with the RSYNC service is required for the Backup Service to function. The DIVArchive Manager server, DIVArchive Backup Manager server, DIVArchive Database server, and all remote backup systems must have the following installed:

> **Caution:** The first two modules must be installed in the specific sequence shown before proceeding.

- CYGWIN must be installed using the DIVArchive Prerequisites package.

- RSYNC
  - CYGWIN must be installed before running the RSYNC installation.
  - http://rsync.samba.org
  - You must configure the RSYNC modules.
  - You must have the RSYNC service running.
- You must install the DIVArchive Backup Service on the server where the DIVArchive Manager and Oracle Database are installed.
- You must download and install 7zip for 32-bit Windows (http://www.7-zip.org/).
- You must download and install Oracle Java JDK/JRE build 1.8.0_45-b02.

Installing the DIVArchive Backup Service Software

The DIVArchive Backup Service component is installed as an integral part of the standard DIVArchive system installation. You must install the component on the same server as the DIVArchive Manager and Oracle Database. Also, the Backup Service does not support installation with the Manager and Oracle Database installed on separate computers.

You must configure the DIVArchive Backup Service to replicate files across multiple backup servers for redundancy. Therefore, you must identify the following systems before installation for successful use of the DIVArchive Backup Service:

- Which computer is called *Backup System 1* (required)
- Which computer is called *Backup System 2* (required)
- Which additional computers are called *Backup System additional_number*. The *additional_number* identifies additional backup server numbering, for example *Backup System 3*, or *Backup System 4*. This is optional and only required to have more than two backup systems.

You must ensure the ***Database*** check box is selected on the *Choose Components* screen during DIVArchive installation to install the DIVArchive Backup Service.

Configuring the DIVArchive Backup Service

By default, the Backup Service is installed in the `%DIVA_HOME%\Program\DBBackup` folder. The default Backup Service configuration file is named `backup.conf.ini` and is located in the `%DIVA_HOME%\Program\conf\db_backup` folder.

You must configure the settings in both the DIVArchive Configuration Utility and the Backup Service configuration file. You must rename the configuration file from `backup.conf.ini` to `backup.conf`.

You must edit the configuration file, set the application parameters, and verify the default values.

Note: You must use a slash instead of the normal backslash for the folder separator in the configuration file.

The following two parameters define the scope of operations in the DIVArchive Backup Service's `backup.conf` configuration file. If you set both of these parameters to `N` (indicating no, or disabled), the DIVArchive Backup Service will not start.

`BACKUP_SERVICE_MANAGE_DATABASE_BACKUPS`
This parameter enables or disables backup of the DIVArchive Oracle Database. The default value is `Y` (indicating yes, or enabled).

`BACKUP_SERVICE_MANAGE_METADATA_BACKUPS`
This parameter enables or disables backup of the Metadata Database. The default value is `N` (indicating no, or disabled).

You must set the following parameters in the DIVArchive Configuration Utility's **Manager Setting** tab. You must set the Metadata Database file location to an existing, valid location. The Manager uses this value to save the Metadata Database files. For example, `F:\META_DATABASE_ROOT\`.

Complex Objects Metadata Database Location
This is the path to the Metadata Database. There is no default path specified. The path must exist, and is validated by the DIVArchive Manager and the Backup Service. You must use a drive with ample storage. See Sizing the Metadata Database for information on calculating space requirements.

This parameter is not reloadable and is only checked one time when the Manager and the Backup Service services start. If you make any changes to this parameter you must restart the Manager and Backup Service.

Database Backup Notification
You select the desired notification level from the list as follows. The default setting is **ERRORS AND WARNINGS**. You must restart connected Control GUIs if any changes are made to this parameter.

ERRORS AND WARNINGS
Dialog box notifications are displayed in all connected Control GUIs when there is a Backup error or warning. Errors and warnings are also recorded in the event log. This is the default setting.

ERRORS
Dialog box notifications are displayed in all connected Control GUIs only for Backup errors. Errors and warnings are also recorded in the event log.

DISABLED
Dialog box notifications are disabled, but all of the errors and warnings are recorded in the event log.

Enable Metadata Database Feature
The DIVArchive Manager can archive complex objects and Backup Service can backup up the Metadata Database only when you enable this parameter (the check box is selected). When disabled (the check box is deselected) DIVArchive Manager cannot archive complex objects and the Backup Service cannot backup the Metadata Database. *This parameter must be left at the default enabled setting*.

This parameter is not reloadable and is only checked one time when the Manager and the Backup Service services start. You must restart the Manager and Backup Service services if any changes are made to this parameter.

If the `BACKUP_SERVICE_MANAGE_METADATA_BACKUPS` is set to `Y` (indicating yes, or enabled) in the Backup Service configuration file, the values of ***Enable Metadata Database Feature*** and ***Complex Objects Metadata Database Location*** in the

Configuration Utility is validated when the Backup Service starts. If the ***Enable Metadata Database Feature*** parameter is set to `N` (indicating no, or disabled), or the ***Complex Objects Metadata Database Location*** is invalid, the Backup Service will fail to start.

You must set the following values on the **Manager Setting** tab of the Configuration Utility before starting the Manager and Backup Service services:

DIVAMANAGER_HOST
This parameter identifies the name of the computer where the Manager is installed. The default value is `localhost`.

DIVAMANAGER_PORT
This parameter identifies the port number the Manager is listening on for connections. The default value is `9000`.

SERVICE_NAME
This parameter identifies the name of the Windows service. The default value is `DIVArchive Backup`.

SERVICE_PORT
This parameter identifies the port number where the service is running. The default value is `9300`. You must change this value if it conflicts with other services.

DIVAMANAGER_DBHOST
This parameter identifies the IP address of the database to connect to from the Manager.

DIVAMANAGER_DBPORT
This parameter identifies the port number of the database to connect to from the Manager. The DIVArchive Database installation uses the Oracle default `1521` port number.

DIVAMANAGER_DBUSER
This parameter identifies the database user name; typically `diva`.

DIVAMANAGER_DBSID
This parameter identifies the Oracle Database SID (typically `lib5`) to connect to from the Manager.

BACKUP_SERVICE_MANAGE_DATABASE_BACKUPS
This parameter enables or disables backup of the DIVArchive Oracle Database. The default value is `Y` (indicating yes, or enabled).

BACKUP_SERVICE_MANAGE_METADATA_BACKUPS
This parameter enables or disables backup of the DIVArchive Metadata Database. The default value is `N` (indicating no, or disabled).

SCRIPT_FILES_DIRECTORY
This parameter identifies the DIVArchive Oracle Database Backup script location. By default, the scripts are copied to the `%DIVA_HOME%\Program\DBBackup\rman\bin` folder during the DIVArchive installation process. This parameter accepts both relative and absolute paths. If you use a relative path, you must assume the current directory is the `%DIVA_HOME%\Program\DBBackup\bin` folder. The default value is `..\rman\bin`.

CYGWIN_BIN_DIRECTORY
This parameter identifies the location of the CYGWIN installation. The default is `C:\cygwin\bin`.

DB_BACKUP_LOCATION
This parameter identifies the location of the Oracle Database backup files. The default location is `H:/oraback/lib5`.

DB_BACKUP_REMOTE_DESTINATIONS
This parameter identifies the location of the Oracle Database remote backup destinations. All remote destinations must be an RSYNC service module name, following by a folder name. The backups must not be copied to the root of the RSYNC module. Multiple destinations are allowed and must be delimited by commas.

The default value is
`rsync://manager2/oraback/mgr1,rsync://actor3/oraback/mgr1`.

The syntax for this setting is `rsync://IP_Address/Module_Name/Folder_Name`. For example, `rsync://172.16.3.45/ORACLE_BACKUP/lib5`.

FULL_BACKUP_START_HOUR_24
This parameter identifies the hour of day to perform a full database backup when the service is initially started. If the service is started later than the configured value, the full backup will occur at this hour on the following day. The default value is midnight; `0` hours.

FULL_BACKUP_START_MINUTE
This parameter identifies the number of minutes after the `FULL_BACKUP_START_HOUR_24` hour to start the full backup. The default value is `0` minutes.

FULL_BACKUP_FREQUENCY_HOURS
This parameter identifies the frequency to execute a full backup of the database. The default value is every 24 hours.

INCREMENTAL_FREQUENCY_MINUTES
This parameter identifies the frequency to execute an incremental backup of the database. The default value is every 15 minutes.

The Backup Service will automatically determine if a full backup is required.

If the `FBM_FREQUENCY_MINUTES` parameter is not set, then this value is also used to notify the Manager how often to expect a message from the DIVArchive Backup Service. If a message is not received by the Manager within the incremental minutes, all connected Control GUIs are notified that the DIVArchive Backup Service may not be running. This event is then recorded in the event log. If the `FBM_FREQUENCY_MINUTES` is set, the Backup Service uses the lowest parameter value to notify the Manager how often to expect a message from the DIVArchive Backup Service.

By default, the Manager expects a message from the Backup Service within 15 minutes after the start of the Manager service. After the Backup Service is started and connected to the Manager, the Manager expects a message within every `INCREMENTAL_FREQUENCY_MINUTES`, or `FBM_FREQUENCY_MINUTES` value identified in the Backup Service configuration file.

FBM_BACKUP_REMOTE_DESTINATIONS
This parameter identifies the location of Metadata Database remote backup destinations. All remote destinations must be an RSYNC service module name, followed by a folder name. The backups must not be copied to the root of the RSYNC module. Multiple destinations are allowed, and must be delimited by commas.

The default value is
`rsync://manager2/oraback/mgr1,rsync://actor3/oraback/mgr1`.

The syntax for this setting is `rsync://IP_Address/Module_Name/Folder_Name`. For example, `rsync://172.16.3.45/ META_BACKUP/FBM`.

FBM_FREQUENCY_MINUTES
This parameter identifies the frequency to execute a Metadata Database backup to all remote metadata backup destinations. The default value is every 15 minutes.

If the `INCREMENTAL_FREQUENCY_MINUTES` parameter is set, the Backup Service uses the lowest parameter value to notify the Manager how often to expect a message from the Backup Service.

A Metadata Database backup is executed when the services start.

DB_FBM_RECOVERY_WINDOW_DAYS
This parameter identifies the recovery window period for the Oracle Database and Metadata Database. This value indicates how many days of backups must be retained. Obsolete backup copies are then deleted. The default is 10 days.

The DIVArchive Backup Service sets this value using the `RMANRecoveryWindow.bat` file included in the DIVArchive Backup Service `bin` folder.

If this batch file is missing the DIVArchive Backup Service will not start.

CLEANUP_START_HOUR_24
This parameter identifies the hour of the day for initial start of the Backup Service clean up process to delete the obsolete backup copies. The default value is `2` (representing 2:00 AM).

CLEANUP_START_MINUTE
This parameter identifies the number of minutes after `CLEANUP_START_HOUR_24` to start the clean up process. The default value is `0` (representing the top of the hour).

CLEANUP_FREQUENCY_HOURS
This parameter identifies the frequency to run the clean up process. The default value is every 24 hours.

See Monitoring the DIVArchive Backup Service for additional monitoring and notification options and configuration.

Installing and Starting the DIVArchive Backup Service

After verification of the DIVArchive Backup configuration file parameters, you must install and start the DIVArchive Backup Service using the following procedure:

1. Confirm, that all of the prerequisites are in place. See DIVArchive Backup Service Prerequisites for details.
2. Open a Windows command line.
3. Change to the `%DIVA_HOME%\Program\DBBackup\bin` folder.
4. The `dbbackup.bat` command-line syntax is `dbbackup {command} [options]`.

The following list describes the dbbackup.bat commands:

`install` (or `-i`)
This command installs the DIVArchive Backup Service as a Windows service. You must install the Backup Service on the same server where the Manager and Oracle Database are installed.

`uninstall` (or `-u`)
This command uninstalls the DIVArchive Backup Service Windows service.

`start`
This command starts the DIVArchive Backup Service.

`stop`
This command stops the DIVArchive Backup Service.

`restart`
This command stops, and then subsequently restarts the DIVArchive Backup Service.

`reconcile`
This command lists the complex objects that are missing the Metadata Database files.

`status`
This command returns the current release level of the DIVArchive Backup Service, the IP address and port that it is installed on, and the state of the service. Current states are *Running* and *Not Running*.

If the state is **Not Running** after an attempt to start has failed, you must review the logs to determine why the service could not start.

The following are two example outputs using the `status` command:

```
Service (on 127.0.0.1:9300) is running.
Service (on 127.0.0.1:9300) is not running.
```

`version` (or `-v`)
This command displays the Backup Service release information and then exits.

`help` (or `-h`)
This command displays `dbbackup` command help information and then exits.

There is only one `dbbackup` command-line option as follows:

`-conf` (or `-f`)
This option identifies a specific configuration file to load the settings from. The default is `%DIVA_HOME%\Program\conf\db_backup\backup.conf`.

Installing and Configuring the Windows RSYNC Service and Module

The DIVArchive Backup Service incrementally replicates Oracle Database backup files and Metadata files to remote backup servers. After you install CYGWIN, you must install the RSYNC service and RSYNC modules. The RSYNC modules provide a logical name for the backup location path. You must configure the DIVArchive Manager server, DIVArchive Backup Manager server, DIVArchive Database server, and all remote backup systems using the following procedure:

> **Note:** The DIVArchive Prerequisite Package installs CYGWIN and performs the RSYNC Configuration. The following steps only need to be performed when the DIVArchive Prerequisite Package is not used for installing CYGWIN.

1. Open a command-line window and execute the following command:

```
%CYGWIN_HOME%\bin\cygrunsrv -I rsyncd -d "RSYNC Daemon" --path /usr/bin/rsync
```

```
--args '--config=/etc/rsyncd.conf --no-detach --daemon --quiet' -e
CYGWIN='binmode tty nontsec'
```

2. Open the `%CYGWIN_HOME%\etc\rsyncd.conf` configuration file and add a new module using the following syntax. Oracle recommends configuring RSYNC modules to point to the same directory on the Main Backup server, and all Remote Backup servers.

   Note: The square brackets are required for the `[Module_Name]` statement. Therefore, in the example, `[ORACLE_BACKUP]` and `[METADATA_BACKUP]` must include the brackets.

```
[Module_Name]
path = {cygwin_style_path}
comment = {Description}
```

Example:

```
[ORACLE_BACKUP]
path = /cygdrive/h/oraback
comment = Oracle backups

[METADATA_BACKUP]
path = /cygdrive/h/metaback
comment = Metadata Database backups
```

3. You can now start the RSYNC service from the Windows Service Manager, or execute `%CYGWIN_HOME%\bin\cygrunsrv -S rsyncd` to start it from the command line.

Installing and Configuring the Linux RSYNC Service and Module

RSYNC for Linux is added as part of the `divaservice`. The following is the `divaservice` information displayed when you execute the `./divaservice` command without any options:

```
[diva@linux008 Program]$ ./divaservice

runuser: user oracle does not exist
Warning: Unable to get Oracle SID

Usage ./divaservice configure <SERVICE>
Usage ./divaservice install <SERVICE> <configuration file as absolute path>
Usage ./divaservice start-all | stop-all | restart-all
Usage ./divaservice start | stop | restart | uninstall | status <SERVICE_NAME>
Usage ./divaservice list
Usage ./divaservice profile

SERVICE: manager actor robotmanager migrate dfm dbbackup lynxlocaldelete spm
rsyncDaemon
```

Example:

First, you must execute `sh divaservice install rsyncDaemon /home/diva/DIVA/7_4_0_35/Program/conf/rsync/rsync.conf` to install the service.

After the service is installed, you must execute `sh divaservice start rsyncDaemon` to start the service.

5

Operations and Monitoring

This chapter describes operation and monitoring the DIVArchive Backup Service, and includes the following information:

Configuring the Metadata Database

You must set the following two parameters on the **Manager Setting** tab of the Configuration Utility to enable complex object workflows and Metadata Database backups:

Enable Metadata Database

Select this check box to enable use of the Metadata Database.

Metadata Database Location

Enter an empty directory path that exists in the file system in the ***Metadata Database Location*** field.

> **Note:** Changes made to these parameters require you to restart the Manager and Backup Service. When it is necessary to change the Metadata location, you must confirm that you have copied all of the Metadata files from the old location to the new location.

Oracle highly recommends that you store the Metadata Database files on a RAID disk array. The Metadata Database should not be on a standard disk due to decreased performance and the real-time backup functionality that a RAID array affords the system.

Metadata Database files stored on a standard disk are vulnerable to data loss if a single disk failure occurs until the information is replicated with the DIVArchive Backup Service. Storing the Metadata Database files on a RAID array isolates the data from these types of failures.

Sizing the Metadata Database

You can use the following formula as a rough guide to determine the minimum disk space required to support the Metadata Database:

```
(100+avg_path_file_name_size)*1.15*avg_number_component_files*number_objects
```

When planning, enough Metadata Database disk space should be allocated to ensure expected, or unexpected, growth of your environment. *You must allocated the same disk space for the Metadata Database on all of the remote backup systems*.

Example:

avg_path_file_name_size = 60
this/nested/subdir01/As_The_World_Turns_24fps_scenes1-10.avi

avg_number_component_files = 200,000
This is the average number of files and folders within the complex object.

num_objs = 50,000
This si the number of complex objects to be archived.

In this example, the recommended *minimum* disk space allotment would be for a Metadata Database size of approximately 1.67 TB.

Database Backup Recovery Window

The *Recovery Window* defines how much history (in days) of backups the DIVArchive Backup Service must retain, and delete obsolete backups that are outside of the Recovery Window range. Preserving considerable days of backups is very important because it enables the flexibility to roll back the system to any earlier state if a situation arises.

The Recovery Window value is configured using the `DB_FBM_RECOVERY_WINDOW_DAYS` parameter in the configuration file. The default value is `10` days.

When a complex object is deleted, the Manager only deletes the entries in the Oracle Database, and retains the complex object's Metadata file in the Metadata Database until the end of the Recovery Window period.

The following example describes the typical sequence of events when a complex object is deleted. For this example, the current Recovery Window is 10 days and the Backup Service clean-up is scheduled to run every day at 2:00 AM. Therefore, the Recovery Windows parameters are configured as follows:

```
DB_FBM_RECOVERY_WINDOW_DAYS = 10
CLEANUP_START_HOUR_24 = 2
CLEANUP_START_MINUTE = 0
CLEANUP_FREQUENCY_HOURS = 24
```

1. *ComplexObject-A* is deleted on September 10, 2016 at 10:00 AM. Only the entries in the Oracle Database are deleted, and the complex object's Metadata file is retained on the ***Metadata Database Location*** identified in the Configuration Utility.

2. The Backup Service tracks the time and date of deleted complex objects until the end of the Recovery Window period.
3. While running the clean-up task at 2:00 AM on September 21, 2016, the DIVArchive Backup Service detects that the 10 day recovery period has expired.

   Because the deletion of *ComplexObject-A* occurred 11 days ago (on September 10, 2016), which is outside the Recovery Window period, the Database Backup Cleanup process deletes the corresponding Metadata file from the Metadata Database.
4. The DIVArchive Backup Service retries any failed Metadata file deletions again during the next execution (on September 22, 2016 at 2:00 AM).

Database Backup Cleanup

It is impossible to preserve all of the backups. Therefore, any backups outside of the Recovery Window period must be deleted to clean up disk space. The DIVArchive Backup Service checks for obsolete backups every 24 hours (by default) that were created beyond the Recovery Window and deletes them. The cleaning of obsolete backups works differently for the Oracle Database and Metadata Database.

Backup Interval Overrun

A *Backup Interval Overrun* occurs when a specific backup is taking a longer time to complete beyond the next scheduled iteration.

The following example is called a *Backup Interval Overrun* because the Backup Service must run the next incremental backup by 12:15 PM, but it cannot because the backup process started at 12:00 PM is still running.

1. The Oracle Incremental Backup is schedule to run every 15 minutes:

   ```
   INCREMENTAL_FREQUENCY_MINUTES = 15
   ```

2. The incremental backup starts at 12:00 PM and runs at the value set for the `INCREMENTAL_FREQUENCY_MINUTES` parameter; in this case every 15 minutes.
3. At 12:15 PM the incremental backup is incomplete and still running, causing a *Backup Interval Overrun*.

The DIVArchive Backup Service sends a *Backup Timeout Warning* to the Manager when a Backup Interval Overrun occurs. The Manager broadcasts this warning to all connected Control GUIs, and records the warning in the event log. If a Backup Timeout occurs three consecutive times, the timeout warning messages are elevated to an error message. *You must take immediate and necessary action to modify the backup's frequency by updating the configuration file to avoid future Backup Interval Overrun occurrences*.

> **Note:** Updating the configuration file requires a Backup Service restart. Execute dbbackup restart to perform a restart, or `dbbackup restart -conf {config_file_name}` if you must specify a specific configuration file.

Monitoring the DIVArchive Backup Service

The DIVArchive Backup Service notifies the Manager about all backup errors and warnings. The Manager broadcasts the backup errors and warnings to all connected

DIVArchive Control GUIs. The Control GUIs display a dialog box indicating the specific error or warning, and records them in the event log.

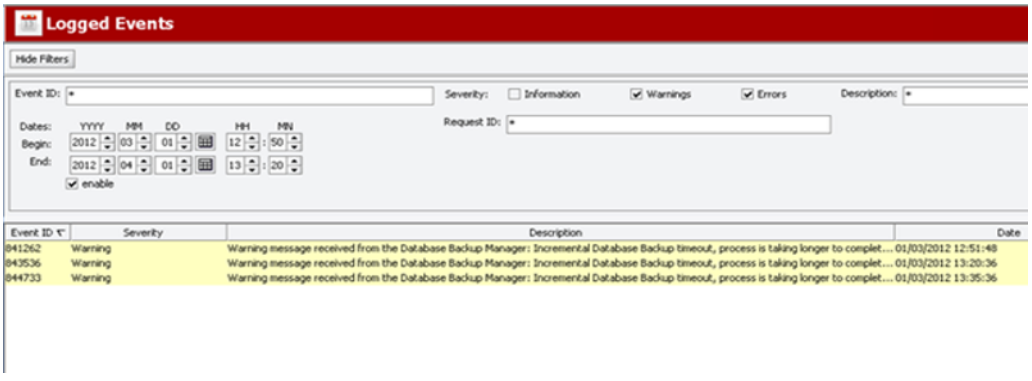
You use the list menu to the right of the Suppress Alerts label to snooze alerts. The list menu enables you to snooze the error or warning as follows: **Never** (never allow this message type to be snoozed), **One Hour**, **Three Hours**, and **Eight Hours**. The system snoozes the specific message type displayed in the dialog box and suppresses future messages for the *same* error or warning. *Snoozing a message dialog box has no effect on the currently displayed error or warning; it only affects future messages about the same error or warning that has been snoozed*.

When you start the Control GUI, the system queries the logged events to determine if there are any Backup Service errors within the last 24 hours. When an error is detected, the *Error Icon* on the bottom right of the Control GUI is enabled and red in color. When you click the icon, it displays all errors generated in the last 24 hours in the Manager *Events* panel. The last error in the logged events will be displayed in a dialog box.

When an error notification is received by the Control GUI, the *Error Icon* will flash 10 times, indicating arrival of a new error message. The icon will flash continually if the error received is a Backup Service error. Clicking the *Error Icon* opens the Events in the *Manager* panel to display only the Backup Service errors received within the last 30 minutes, and then resets the *Error Icon*. The Status Bar at the bottom of the Control GUI also displays the incoming error, warning and informational messages.

All messages generated by the Backup Service are also written to the Database Event Log and marked as *Backup Service Messages*. If no Control GUI is connected, you can review all of the backup errors and warnings by navigating to the *Logged Events* panel under the **Analytics** tab in the Control GUI.

Events in the *Logged Events* panel may be filtered using the filter check boxes and fields to reduce the number of entries being viewed simultaneously. The following figure shows that the screen has been filtered to show only *Warnings* and *Errors* because their associated check boxes are selected in the filter area. It is readily apparent there are three warning events that have been logged about the Database Backup Manager timing out during an incremental backup attempt. If the timeout occurs again, the warning is elevated to an error (after three warnings) and displayed in red (rather than yellow).



Error messages are prefixed with the process that generated the error or warning, and where applicable, post *fixed* with the start of the process and elapsed time. The elapsed time is the time the process ran before generating the error.

The following table describes the different warning and error notifications displayed on the Control GUIs.

Table 5–1 DIVArchive Backup Service Errors and Warnings

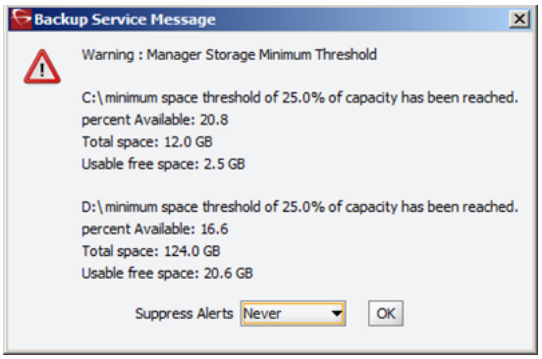
Message Type	Code	User Message	Posted to Manager
SUCCESS	0	Completed successfully	Yes, informational
RUN	1	Running	No, internal only
ERROR	2	Failure: Refer to the Backup Service logs for more details.	Yes, error
TIMEOUT	3	Timeout: The process is taking longer to complete than the configured intervals. The Backup Service continues to display timeout messages as a warning. If the timeout occurs three consecutive times, the message will be elevated to an error message and displayed.	Yes, warning
STARTUP_FAILURE	4	DIVArchive Backup Service failed to start. Refer to the Backup Service logs for more details.	Yes, error
INITIALIZE	5	Scheduling Backups	No, internal only
TIMEOUTERROR	6	Timeout: The process is taking longer to complete than the configured interval.	Yes, error
CONFIGERROR	1000	Invalid Configuration Error. Refer to the Backup Service logs for more details.	Yes, error
METADATALOCATIONERROR	6000	The Metadata Database Location does not exist. Refer to the Backup Service logs for more details.	Yes, error
CLEANUPFBMFILEERROR	7000	The Metadata Database file deletion failed. Refer to the Backup Service logs for more details.	Yes, error
CLEANUPFBMFILEWARNING	7001	Failed deleting the Metadata Database.	Yes, error
RSYNCERROR	8000	An error occurred while copying backups to remote backup destinations. Refer to the Backup Service logs for more details.	Yes, error
RSYNCIOERROR	8002	An I/O error occurred while copying backups to remote backup destinations. Refer to the Backup Service logs for more details.	Yes, error
RSUNCTIMEOUTWARNING	8003	A timeout occurred while copying backups to remote backup destinations. Refer to the Backup Service logs for more details.	Yes, warning
RSYNCTIMEOUTERROR	8005	A timeout occurred while copying backups to remote backup destinations. Refer to the Backup Service logs for more details.	Yes, error
DBCONNECTERROR	9000	Database connection error. Refer to the Backup Service logs for more details.	Yes, error
SQLERROR	9001	Database SQL error. Refer to the Backup Service logs for more details.	Yes, error
DBROLLBACKERROR	9002	Database Rollback error. Refer to the Backup Service logs for more details.	Yes, error

Monitoring Minimum Disk Space

The DISK_MIN_SPACE_THRESHOLD_PERCENT is a notification threshold percentage of the available space for each drive accessible by the Manager. The default value is 5 percent. For example, DISK_MIN_SPACE_THRESHHOLD_PERCENT=25 sets the notification threshold to 25 percent. This function does not monitor removable media and drives.

When the configured threshold of available space on the media is reached, warning notifications are sent out. After the available space reaches 80 percent of the designated percentage (in the dbbackup.conf file), an error message is sent out.

When the configured percentage is reached, a dialog box will be displayed as shown in the following figure.



The ***Suppress Alerts*** list at the bottom of the dialog box functions identically to the other warning and error dialog boxes. In the previous figure a warning was issued to notify the operator that the `DISK_MIN_SPACE_THRESHHOLD_PERCENT` was reached.

Snoozing this alert causes no additional disk space warnings or errors to be displayed. Clicking **OK** without setting a suppression level enables future alerts for this particular warning to be displayed.

In the previous figure, when 80 percent of the threshold percentage is reached (2.4 GB on `C` drive and 24.8 GB on `D` drive), this dialog turns into an error rather than a warning.

When the `dbbackup` status command is executed, additional information is displayed including available space, threshold warnings and errors, and additional information about recent backup attempts.

The following is the additional information displayed after executing the `dbbackup` command:

```
Last process: METADATA Database Replication Start time:Tue Sep 06 13:26:30 EDT
2016
Last status: Completed Successfully.
Last Error:

System Statistics

OS: Windows 2003
Version: 5.2
: x86
Available processors (cores): 4

Total Free memory: 52 MB
Total used memory: 9 MB

Total available memory: 61 MB

Warning:  D:\ minimum space threshold of 20.0% of capacity has been reached.

percent Available: 16.605641010200685
Total space: 124.037 GB
Free space: 20 GB
Usable space: 20.597 GB

Last Metadata Database Actions
No records found
```

```
No records pending deletion

Number of Database backup's performed in the last 24 hours is  89

Type         Status     Start                  End                    Duration
ARCHIVELOG   FAILED     2016-09-05 13:37:52.0  2016-09-05 13:38:00.0  0.13
ARCHIVELOG   FAILED     2016-09-05 13:52:50.0  2016-09-05 13:53:00.0  0.16
ARCHIVELOG   FAILED     2016-09-05 14:07:52.0  2016-09-05 14:08:00.0  0.13
DB FULL      COMPLETED  2016-09-05 19:38:48.0  2016-09-05 19:45:24.0  6.6
ARCHIVELOG   COMPLETED  2016-09-05 19:47:34.0  2016-09-05 19:47:41.0  0.11
ARCHIVELOG   COMPLETED  2016-09-05 20:02:43.0  2016-09-05 20:02:53.0  0.16
ARCHIVELOG   COMPLETED  2016-09-05 23:23:06.0  2016-09-05 23:23:18.0  0.2
```

Email Notifications

The DIVArchive Backup Service incorporates the ability to send out emails for issues arising from the process of backing up the Oracle Database and Metadata Database files. In order to take advantage of this feature, DIVArchive must be configured to connect to an SMTP mail provider. The email notifications are configured through the DIVArchive Configuration Utility under the **Manager Setting** tab.

Use the following procedure to enable email notifications:

1. Open the Configuration Utility and connect to the database.
2. Click the **Manager Setting** tab.
3. Set the values for the following email notification parameters as required:

> **Caution:** If the following parameters are misconfigured, notifications will go out to all connected Control GUIs and entries into the Manager Event Log will be made. However, email notification will not be sent.

Enable E-Mail Notification

If you select the check box (enabled), the Manager attempts to send out email using the configured values.

(SMTP) Outgoing Mail Host

Enter the URL of the email provider for outgoing mail in the ***(SMTP) Outgoing Mail Host*** field. This is provided by your Email Administrator.

(SMTP) Outgoing Mail Port

The port value is port 25 by default. However, many email providers are using a different port for security reasons. The correct port number is provided by your Email Administrator. Enter the correct port number in the ***(SMTP) Outgoing Mail Port*** field.

E-Mail Subject

Enter the value to be used in the ***E-Mail Subject*** field if an email subject is not provided when an error is generated.

(SMTP) Outgoing Mail Required Authentication

Many email providers require you to log in to the email server to allow sending emails. You must select the ***(SMTP) Outgoing Mail Required Authentication*** check box, and provide a valid account name and password (using the following two fields) if required to log in to the email server.

Account Name
Enter the full senders email address in the ***Account Name*** field if the ***(SMTP) Outgoing Mail Required Authentication*** check box is selected.

Account Password
You must enter the password associated with the senders email address in the ***Account Password*** field if you have entered an email address in the ***Account Name*** field.

DIVArchive System Administrator's E-mail Address
Enter the full email address for the DIVArchive System Administrator in the ***DIVArchive System Administrator's E-mail Address*** field so they receive a copy of any email notifications.

Notification E-Mail Recipients
You must enter the full email addresses for anyone who should receive the email notifications in the ***Notification E-Mail Recipients*** field. This should be a comma-delimited list with no spaces.

After you have configured the values, if the Manager is already running you must notify the Manager of any changes. When the Manager starts, or when it receives notifications from the Configuration Utility, reads the configured values and attempts to send out a test email. If the test is successful, all recipients on the ***Notification E-Mail Recipients*** list will receive a *Test Successful* email notification. Otherwise, they will receive an email notifying them of any error that occurred.

Events are logged in the *Logged Events* panel of all connected Control GUIs. A dialog box is displayed notifying you of the email failure error if you are logged in to the Control GUI as an *Administrator*.

DIVArchive Backup Service Status Command

The Backup Service `status` command delivers comprehensive service status information and provides the information outlined in the following sections. The command line syntax is `dbbackup status`.

Backup Service Running Normally

When the Backup Service is running, the following information is displayed when the `status` command is executed:

- Running release of the service
- IP address and port the service is running on
- System statistics
- Operating system information
- Memory information
- Disk array information
- Database backup statistics including:
  - Last executed backup command and the current status
  - Number of Metadata Database files backed up
  - A list of the last 25 Metadata files backed up including the object name and creation date

The information output to the console is also saved in the logs directory in a text file named `dbbackup.status`. This file, and the log files, must be included when submitting issues to Oracle Support.

Backup Service Not Currently Running

When the Backup Service is not currently running, the following information is displayed when the `status` command is executed:

- Running release of the service
- IP address and port the service runs on
- An extract from the DIVArchive Backup Service log files from the last error, or irrecoverable error, reported

Backup Service Failed to Start

If the Backup Service fails to start, execute `dbbackup status` to find out why the service failed to start. After you identify the cause of the failure, correct the issue, and then try to start the service again. If you require assistance contact Oracle Support.

Failure Scenarios and Recovery Procedures

There are two types of failure scenarios; non-failover, and failover.

Non-failover Scenarios

If the Main DIVArchive Manager computer is still fully operational, and there has been no RAID Disk failure, you can restore and recover the DIVArchive system and its database from failure without moving the DIVArchive Manager or database to a Backup DIVArchive Manager computer.

The following are non-failover scenarios and recovery actions (in sequence) to correct them. *Contact Oracle Support if you require assistance or need to restore from a backup.*

Manager Failure

- Restart the Manager
- Apply a cumulative path (if available) and restart the Manager
- Upgrade your DIVArchive installation

Oracle Database Instance Failure

- Restart the Oracle instance
- Reinstall Oracle and restore the database from a backup

Oracle Database Data File Corruption

Restore the data file from an Oracle Secure Backup.

Oracle Database Parameter File or Control File Corruption

Restore the parameter file, or control file, from an Oracle Secure Backup.

Oracle Online Redo Logs Corruption

Restore the database using an Oracle Secure Backup.

Oracle Archive Redo Logs Corruption

Shut down the database and perform a full backup.

Replication (RSYNC) of RMAN Backup Files Failure

The DIVArchive Backup Service sends a failure notification to Manager. The Manager generates error events, broadcasts messages to all connected Control GUIs, and records it in the event log. Each connected Control GUI displays a dialog box notification indicating the need for user action. The possible causes are network issues, the Remote Backup System is unavailable, or the RSYNC service is not running on the Remote Backup System.

Replication (RSYNC) of Metadata Database Files Failure

The DIVArchive Backup Service sends a failure notification to Manager. The Manager generates error events, broadcasts messages to all connected Control GUIs, and records them in the event log. Each connected Control GUI displays a dialog box notification indicating the need for user action. The possible causes are network issues, the Remote Backup System is unavailable, or the RSYNC service is not running on the Remote Backup System.

Failover Scenarios

If the main DIVArchive Manager computer fails, is not operational, or a RAID disk fails, you must restore and recover the DIVArchive Manager and database on the Backup DIVArchive Manager computer to restore DIVArchive back to an operational state.

The following are failover scenarios and recovery actions (in sequence) to correct them. The recovery actions are the same for all of the listed scenarios.

Contact Oracle Support if you require assistance or need to restore from a backup.

The following are possible failures that require failover recovery actions:

- Main DIVArchive Manager Computer Failure
- RAID Disk Failure where Oracle Data Files are Stored
- RAID Disk Failure where Oracle RMAN Backups are Stored
- RAID Disk Failure where Metadata Database Files are Stored

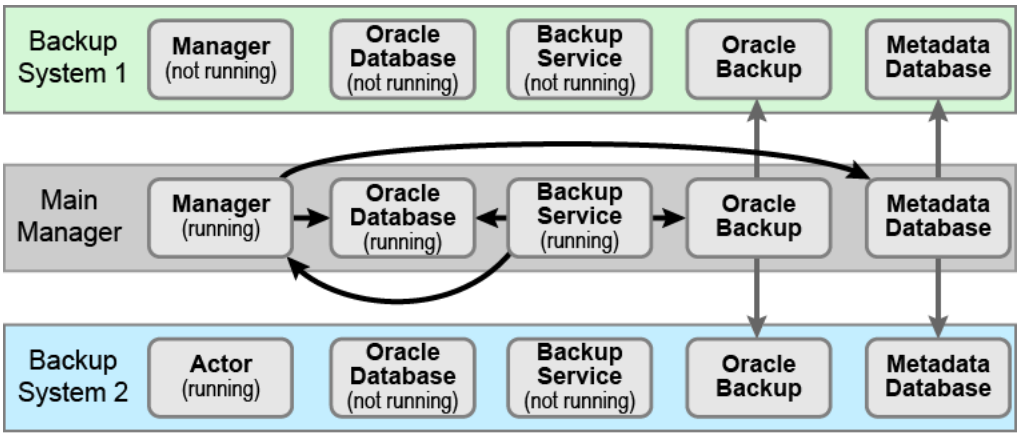
You use the following recovery sequence to complete the failover if any of the previous failures occur:

- Failover to the Backup DIVArchive Manager computer.
- Restore and recover the Oracle Database from an Oracle Secure Backup.
- Execute `dbbackup reconcile` to discover if any complex objects are missing Metadata files.
- Start the DIVArchive Manager.

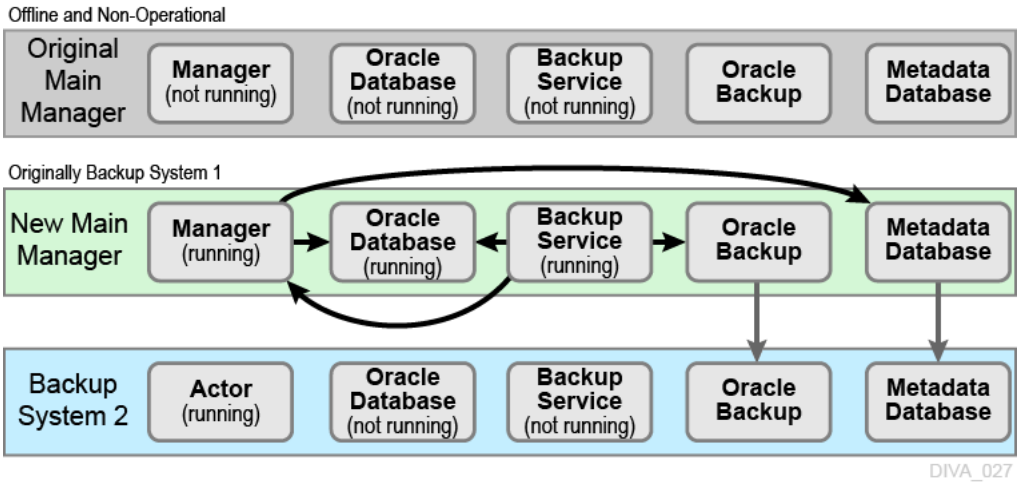
Failover Procedures

You use the following procedure to recover the DIVArchive system if a failure occurs. The first figure is a typical DIVArchive System configuration showing the connections between the different modules, the second displays a failover case, and the third depicts a recovered, operational system. The *Main Manager* and *Backup System 1* are configured identically. However, the Backup Service, Manager, and Oracle Database are not running until they are started (see the third figure). The Backup Service creates the backups on the Main Manager computer and then pushes copies of them to the *Backup System 1*, *Backup System 2*, and *Backup System N*. The *N* represents additional

system numbering if applicable, for example *Backup System 3*, *Backup System 4*, and so on.



For this example, assume the Main Manager computer failed and is offline. The following procedure is the easiest, and fastest, way to get the system back online. You are effectively switching the *Original Backup Manager* to be the *New Main Manager* and the *Original Main Manager* will be the *New Backup Manager* (they are trading places), resulting in the least amount of time the system is offline.



1. Restore the Oracle Database on the *New Main Manager* from the latest Oracle Database backup. Execute the `restore.bat` script located in the `%DIVA_HOME%\Program\DBBackup\rman\bin` folder. The syntax for the command is as follows:

   ```
   restore {"default_dir"} {sid} {"source_dir"} [-syspwd=system_password]
   [-nocomnp]
   ```

   Note: You must use double quotation marks to enclose the directory paths.

   The commands are defined as follows:

default_dir
This parameter is the default directory where the backup files are normally stored on local server.

sid
This parameter is the database instance ID.

source_dir
This parameter is the directory containing the backup files to use as a source for the restore. These files can be backup files coming from another server, or you can use the same directory as `default_dir` to restore from the local backup. When the two directories are different, the contents of the `default_dir` are erased and replaced by a copy of the files from the `source_dir`, and then the restore will take place.

-syspwd
This parameter is the database system user password. When not specified, the `sid` is used instead. *Current RMAN releases seem to ignore this value*.

-nocomp
This parameter tells the system to not recompress backup files after a restore.

Example:

To perform a local restore you would use the command `restore "H:\oraback\lib5" LIB5 "H:\oraback\lib5"`.

To perform a failover restore from *Manager1* to *Manager2*, you would execute the command `restore "H:\oraback\lib5" LIB5 "H:\oraback\mgr1\lib5"` on *Manager2*.

2. On the *New Main Manager*, adjust the Manager configuration file and Backup Service configuration file to point to the Oracle Database that has just been restored (see the previous step).

   Update the `DB_BACKUP_REMOTE_DESTINATIONS` and `FBM_BACKUP_REMOTE_DESTINATIONS` parameters in the Backup Service configuration file, adding the *Backup System 2* as a Remote Backup system on the *New Main Manager* system. You use the following statements for each of your *Backup System* computers; *do not include the system that is now offline*:

   ```
   DB_BACKUP_REMOTE_DESTINATIONS=rsync://Backup_System_N_IP_
   Address/ModuleName/OracleBackupFolderName

   FBM_BACKUP_REMOTE_DESTINATIONS=rsync://Backup_System_N_IP_
   Address/ModuleName/MetaFolderName
   ```

3. Update the ***Metadata Database Location*** to the location where the Metadata Database files were backed up on *New Main Manager* system (the *Original Backup System 1*). You update the parameter under the *Manager Setting* panel in the Control GUI on the *New Main Manager* computer.

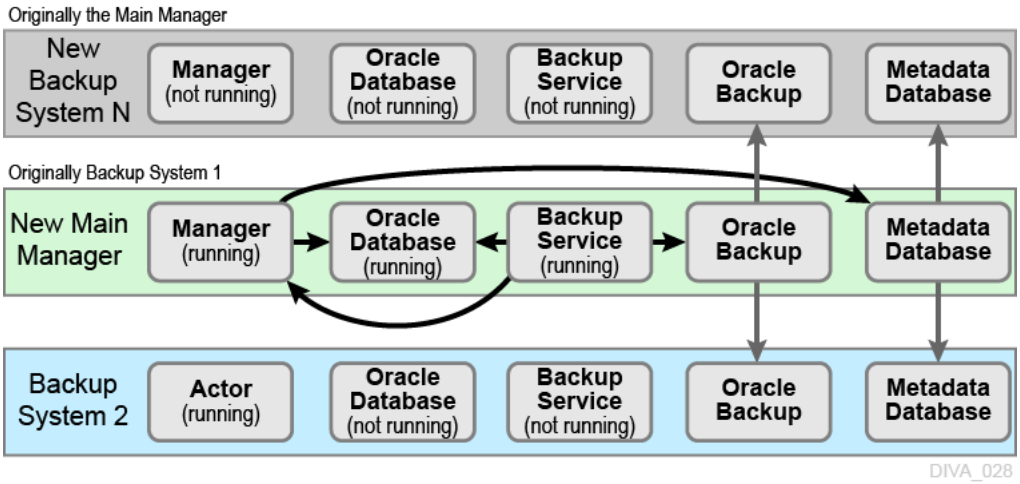
4. Run the Backup Service `dbbackup reconcile` command on the *New Main Manager* system. This command lists all of the complex objects that are missing the Metadata file in the Metadata Database.

   If a complex object is missing the Metadata file, it must be restored from the *Original Main Manager*, or *Backup System 2*. Complex objects are unusable without the associated Metadata file.

5. Start the Manager and Backup Service on the *New Main Manager*.

After the *Original Main Manager* system is restored, recovered from its failure, and is operational, it is converted to the *New Backup System N* with no downtime.

6. Update the `DB_BACKUP_REMOTE_DESTINATIONS` and `FBM_BACKUP_REMOTE_DESTINATIONS` parameters in the Backup Service configuration file on the *New Main Manager* system by adding the *New Backup System N* (the *Original Main Manager*) as the additional remote backup location.
7. Restart the Backup Service on the *New Main Manager* for your configuration changes to take effect.
8. Copy the existing Oracle Database backups and Metadata files from the *Backup System 2* (or *New Main Manager*) to the *New Backup System N* in the background.



6

Troubleshooting

This chapter describes basic troubleshooting methods and includes the following information:

Metadata Database Failure Scenarios

This section describes possible Metadata Database failures and resolutions.

The typical DIVArchive Metadata Database backup configuration backs up the database and transfers the backup files to remote systems (as defined in the configuration) every 15 minutes. Oracle recommends having at least two remote backup systems for redundancy.

Identifying Failure Scenarios, Causes, and Resolutions

The following are examples of possible failure scenarios. Each scenario includes the method of detection, the cause of the failure, a description of the failure, and recovery procedures. Contact Oracle Support if you require additional assistance to resolve any of these issues.

Scenario 1: Metadata Database Storage Disk Failure

You can identify a disk failure on the Main Manager because no more complex objects can be archived into the DIVArchive system. Only Delete requests are possible on existing complex objects. DIVArchive is still operational for archiving non-complex objects.

New Metadata files created for complex objects archived since the last successful backup, up until the disk failure, are not available immediately. However, they can be recovered from the AXF file.

You can identify a disk failure on one of the backup systems because the Metadata Database files created by a new Archive request since the disk failure are backed up only to one backup system, instead of all identified backup systems.

The method of detection for this failure is that a complex object request fails with the error `Internal error: metadata database error`. A *Metadata Database Backup Failure* notification is displayed on the Control GUI, and the backup failure events are logged in the Manager Event Log.

The possible causes of this failure include the following:

- RAID controller failures
- Power surges
- External process errors
- Disk volume reconstruction error if the RAID was previously rebuilt

Even though Oracle recommends storing the Metadata Database on a RAID disk, disk failure scenarios cannot be totally eradicated, and the unlikely chance of Disk Failure still exist.

Use the following procedure to attempt recovery from disk failure on the Main Manager:

1. Stop the Manager and Backup Service.
2. Replace the failed disk.
3. Navigate to the **Manager Setting** tab in the Configuration Utility and confirm that the ***Metadata Database Location*** setting is pointing to the replaced disk.
4. Start the Manager and Backup Service.
5. Copy all of the Metadata files from a backup system to the ***Metadata Database Location*** on the replaced disk.
6. Execute the `dbbackup reconcile` command to confirm no complex objects are lost.
7. The Metadata files of complex objects archived since the last successful backup, and before the disk failure, are not immediately available. However, they are recoverable from the AXF file. Recovery from AXF files is not supported in this DIVArchive release; contact Oracle Support for assistance.

Use the following procedure to attempt recovery from disk failure on one of the backup systems. The system can be operational if the backups made to other backup systems were successful.

1. Replace the failed disk.
2. Copy all Metadata files from the second *Backup System* and *Main Manager System* to the folder identified in the ***Metadata Database Location*** on the replaced disk.

Scenario 2: Metadata Database File Corruption

No operations or requests are possible on complex objects whose Metadata files are corrupted, except Delete Object requests, until it is restored. A Metadata file modified by any external source (other than DIVArchive) after it is backed up will not affect its backup copies in the backup systems.

You can identify when a Metadata Database file becomes corrupted because complex object requests fail with the following error:

```
Internal error: metadata database error:
Message: Metadata file read error.
```

The possible causes of this failure include the following:

- External process errors
- The file is modified manually by mistake

Use the following procedure to attempt recovery from a corrupt Metadata Database file. If the corruption occurred after the Metadata file is backed up, the Metadata file can be restored from one of the backups servers.

1. Execute the `FindMetadataFile.bat` utility located in the `%DIVA_HOME%/programs/utilities/bin` folder on the *Main Manager System*.

   This utility prints out the location of the Metadata file with its file name inside the specified ***Metadata Database Location***, and accepts the database connection parameters and the complex object name and category as parameters.

2. Locate the file with the file name and path printed from the utility in the Metadata Database backup location on one of the backup servers.

3. Replace the Metadata file on the *Main Manager System* in the configured ***Metadata Database Location*** with the copy from the backup server.

If the corruption occurred before the Metadata file was backed up, the Metadata file is not immediately available. However, it is recoverable from the AXF file. Recovery from AXF files is not supported in this DIVArchive release; contact Oracle Support for assistance.

Scenario 3: Lost or Manually Deleted Metadata Database File

Metadata deleted by any external source other than DIVArchive after it is successfully backed up does not affect its backup copies on the backup systems.

You cannot perform any operations or requests on complex objects whose Metadata file is corrupt, except Delete Object, until the Metadata file is restored.

You can identify when a Metadata Database file is lost or deleted because complex object requests fail with the following error message:

```
Internal error: metadata database error:
Message: get: Error opening metadata for objectname/category, db error=Error file
not found.
```

The possible causes of this failure include the following:

- External process errors
- The file was manually deleted by mistake

If the file is lost after the Metadata File is backed up, the Metadata File can be restored from one of the Backup Servers. Use the following process to attempt recovery from a lost or deleted Metadata Database file:

1. Execute the `FindMetadataFile.bat` utility located in the `%DIVA_HOME%/programs/utilities/bin` folder on the *Main Manager* system.

   This utility prints out the location of the Metadata file with its file name inside the specified ***Metadata Database Location***, and accepts the database connection parameters and the complex object name and category as parameters.

2. Locate the file with the file name and path printed from the utility in the Metadata Database backup location on one of the backup servers.

3. Replace the Metadata file on the *Main Manager System* in the configured ***Metadata Database Location*** with the copy from the backup server.

If the file was lost before the Metadata file was backed up, the Metadata file is not immediately available. However, it is recoverable from the AXF file. Recovery from AXF files is not supported in this DIVArchive release; contact Oracle Support for assistance.

Scenario 4: Failure to Backup Metadata Database to All Backup Systems

Failure to back up the Metadata Database to all backup systems results in all complex objects archived after this failure not being backed up. You must resolve this failure as soon as possible because the DIVArchive system is at risk of data loss.

You can identify this error when a *Metadata Database Backup Failure* notification is displayed on the Control GUI. The backup failure events are also logged in the Manager Event Log.

The possible causes of this error are as follows:

- Network errors
- The backup systems are offline
- The RSYNC daemon is offline
- The Backup Service has failed

Use the following referenced resolutions to attempt correction of this issue:

Network Errors

Resolve the network error.

Backup System Offline

Start, or restart, the Backup System.

RSYNC Daemon Offline

Start, or restart, the RSYNC daemon.

Backup Service Failure

Restart the Backup Service and collect the logs for investigation.

After the problem is resolved, all of the Backup Systems sync automatically, and the missing Metadata files are backed up during the process. *There is no data recovery required for this scenario*.

Scenario 5: Failure of the Metadata Database Backup to One Backup System

In this scenario, the Metadata Database fails to back up to (only) one of the Backup Systems. However, the back ups to other Backup Systems continue successfully.

You can identify this error when a *Metadata Database Backup Failure* notification is displayed on the Control GUI. The backup failure events are also logged in the Manager Event Log.

The possible causes of this error are as follows:

- Network errors
- The Backup System where the error occurred is offline

Use the following referenced resolutions to attempt correction of this issue:

Network Errors

Resolve the network error.

Backup System Offline

Start, or restart, the Backup System.

After the problem is resolved, all of the Backup Systems sync automatically, and the missing Metadata files are backed up during the process. *There is no data recovery required for this scenario*.

DIVArchive Manager will not start

When the Manager starts it checks the following parameters. The Manager will not start if any combination of these parameters is incorrect. Confirm the ***Enable Metadata Database*** parameter is configured correctly, and the ***Metadata Database Path*** is a valid path that is not empty.

DIVArchive Backup Service will not start

The DIVArchive Backup Service is designed to terminate execution immediately after attempting to start if it is configured incorrectly. This behavior can be caused by any of the following reasons:

- The configuration file is missing.
- The database connection information is incorrect, or the database is not running.
- The `BACKUP_SERVICE_MANAGE_METADATA_BACKUPS` parameter is set to `Y` (Yes, or enabled) in the Configuration file, but not enabled under the *Manager Settings* panel in the Configuration Utility.
- The `BACKUP_SERVICE_MANAGE_METADATA_BACKUPS` parameter is set to `Y` (Yes, or enabled) in the Configuration file, but the ***Metadata Database Location*** is not set, or set to an invalid directory under the *Manager Settings* panel in the Configuration Utility.
- The `BACKUP_SERVICE_MANAGE_METADATA_BACKUPS` parameter is set to `Y` (Yes, or enabled) in the Configuration file, and the ***Metadata Database Backup*** is enabled under the *Manager Settings* panel in the Configuration Utility, but the ***Metadata Database Location*** is not set, or set to an invalid directory.
- `BACKUP_SERVICE_MANAGE_DATABASE_BACKUPS` and `BACKUP_SERVICE_MANAGE_METADATA_BACKUPS` parameters are set to `N` (No, or disabled) in the Configuration file.
- `RMANRecoverWindow.bat` is not in the bin folder for the Backup Service.

7

Frequently Asked Questions

This chapter answers frequently asked questions concerning the content described in this book and includes the following information:

- How do I check the status of the DIVArchive Backup Service?
- How do I failover to a Backup System when the Main Manager System has failed?
- How do I recover when a complex object's Metadata file is corrupted in the Main Manager System?
- How do I recover a complex object's Metadata file when it is corrupted in the Backup Manager System?
- When a Metadata file is manually deleted from Main Manager System, is it also deleted from all backup systems?
- How do I recover when a complex object's Metadata file is manually deleted in Main Manager System?
- How do I recover when a complex object's Metadata File is lost on the Main Manager System and all backup systems?
- How do I recover when the backup disk fails, or gets corrupted, on the Main Manager System?
- How do I configure a full backup to start when the Backup Service starts?
- How do I locate a complex object's Metadata inside the Metadata Database?
- How does the Metadata Database maintain its recovery window when a complex object is deleted?
- How do I turn off GUI Backup Service Notifications?
- Can the DIVArchive Manager and Oracle Database be installed on separate servers?
- Does the recovery window apply to both Oracle Secure Backups and Metadata Backups?
- How do I estimate the size for the Metadata Database location?
- Where do I configure the location of the Metadata Database?
- What information is stored in the Metadata Database file?
- Is the information stored in the Metadata Database irreplaceable or mission critical?
- Why is this information not being stored in the existing Oracle Database?

- What are the space requirements for the Metadata Database and data? Does it depend on the quantity of objects, the complexity of those objects, or something else?
- What if a customer has, for example, 1,000,000 objects, each with 100,000 files?
- What are the consequences of the Metadata Database becoming inoperable, corrupt, or missing? Will data loss, performance loss, or something else occur?
- What are the consequences of the Metadata Database running out of available storage space? Will data loss, performance loss, or something else occur?
- What tools exist for testing or verifying the integrity of the Metadata Database? Are the tools automatic, invoked manually, or can either method be used?
- What tools exist for backing up the Metadata Database? Are the tools automatic, invoked manually, or can either method be used?
- What tools exist for recovering the Metadata Database if loss or corruption occurs? What is the procedure to execute recovery, and is any of the recovery automatic?
- Does the storage location of the live database affect performance or space, and is it critical?
- Can the location of the Metadata Database backups be configured?

How do I check the status of the DIVArchive Backup Service?

Check the DIVArchive Backup Service status using the `dbbackup status` command from the command-line interface. See DIVArchive Backup Service Status Command for detailed information.

How do I failover to a Backup System when the Main Manager System has failed?

See Failure Scenarios and Recovery Procedures for the complete procedure.

How do I recover when a complex object's Metadata file is corrupted in the Main Manager System?

The DIVArchive Backup Service backs up the Metadata Database file by file. After the file is backed up to the backup systems, any corruption to, or modifications of, the Metadata files *are not* propagated to the backup systems.

If a complex object Metadata file is corrupted, restore the Metadata file from one of the backup systems.

In the unlikely event of disk corruption due to hardware failure occurring before the Backup Service has backed up the Metadata files, the non-backed up Metadata files can *only* be restored from a tape or disk. *The feature to restore Metadata files from tape or disk is not currently available in this DIVArchive release*. Contact Oracle Support for assistance.

How do I recover a complex object's Metadata file when it is corrupted in the Backup Manager System?

Oracle recommends always making backup copies to two separate backup systems to handle these scenarios. Restore the Metadata file from the *Secondary Backup System* or *Main Manager System*.

When a Metadata file is manually deleted from Main Manager System, is it also deleted from all backup systems?

Manually deleted Metadata files are not propagated to any backup systems.

How do I recover when a complex object's Metadata file is manually deleted in Main Manager System?

Execute the `dbbackup.bat reconcile` command to identify which complex object is missing the Metadata file. Restore the Metadata file from one of the backup systems.

How do I recover when a complex object's Metadata File is lost on the Main Manager System and all backup systems?

You can restore Metadata files from tape or disk. *The feature to restore Metadata files from tape or disk is not currently available in this DIVArchive release. Contact Oracle Support for assistance.*

How do I recover when the backup disk fails, or gets corrupted, on the Main Manager System?

Disk failures, or corruption, requires a failover to the *Backup Manager*. *See Failure Scenarios and Recovery Procedures for the complete procedure*.

How do I configure a full backup to start when the Backup Service starts?

The DIVArchive Backup Service automatically determines if a full backup is required when it starts. There is no configuration required.

How do I locate a complex object's Metadata inside the Metadata Database?

Contact Oracle Support for assistance.

How does the Metadata Database maintain its recovery window when a complex object is deleted?

See Database Backup Recovery Window for detailed information.

How do I turn off GUI Backup Service Notifications?

You can turn off notifications by deselecting the check box for the ***Database Backup Notification*** parameter under the *Manager Setting* panel in Configuration Utility.

Can the DIVArchive Manager and Oracle Database be installed on separate servers?

No, they must be installed on the same server because the DIVArchive Backup Service does not support Manager and Oracle installations on separate servers in this DIVArchive release.

Does the recovery window apply to both Oracle Secure Backups and Metadata Backups?

Yes, the recovery window setting applies to both backups.

How do I estimate the size for the Metadata Database location?

See Sizing the Metadata Database for detailed information.

Where do I configure the location of the Metadata Database?

You configure the location of the Metadata Database using the ***Complex Objects Metadata Location*** parameter in the *Manager Setting* panel in Configuration Utility.

What information is stored in the Metadata Database file?

All file details including file names, folder names, location, size, checksums, and so on.

Is the information stored in the Metadata Database irreplaceable or mission critical?

Oracle always recommends having at least two backup copies of the Metadata Database. You use the DIVArchive Backup Service to back up the Metadata Database. In a worst case scenario, use the *Oracle Archive eXchange Format Explorer* to recover the object from tape if the Metadata Database file of a particular object is lost.

Why is this information not being stored in the existing Oracle Database?

The amount of Metadata information is huge. Complex objects are supported up to 1,000,000 files. Currently, the Oracle Database in use does not have any scalability features to support complex object workflows.

What are the space requirements for the Metadata Database and data? Does it depend on the quantity of objects, the complexity of those objects, or something else?

See Sizing the Metadata Database for detailed information.

What if a customer has, for example, 1,000,000 objects, each with 100,000 files?

The Metadata Database is very scalable and can handle this amount with no issues.

What are the consequences of the Metadata Database becoming inoperable, corrupt, or missing? Will data loss, performance loss, or something else occur?

You will not be able to process complex object requests if the database becomes inoperable. You can restore from one of the backup copies if the database becomes corrupt, or is missing.

What are the consequences of the Metadata Database running out of available storage space? Will data loss, performance loss, or something else occur?

In this case you will not be able to process any complex object requests. *See Sizing the Metadata Database for detailed information*.

What tools exist for testing or verifying the integrity of the Metadata Database? Are the tools automatic, invoked manually, or can either method be used?

Currently there are no tools that exist to check the database integrity. Contact Oracle Support if you need assistance.

What tools exist for backing up the Metadata Database? Are the tools automatic, invoked manually, or can either method be used?

Always use the DIVArchive Backup Manager Service to back up the Metadata Database.

What tools exist for recovering the Metadata Database if loss or corruption occurs? What is the procedure to execute recovery, and is any of the recovery automatic?

See Failure Scenarios and Recovery Procedures for the complete procedure.

Does the storage location of the live database affect performance or space, and is it critical?

Yes, it is both performance and space critical. *See Chapter 2 for installation and configuration procedures*.

Can the location of the Metadata Database backups be configured?

Yes, you can configure the backup location. *See Chapter 4 for DIVArchive Backup Service installation and configuration procedures*.

A

DIVArchive Options and Licensing

The following table identifies DIVArchive options and licensing metrics.

Part Number	Description	Licensing Metric
L101163	Oracle DIVArchive Nearline Capacity	Per TB
L101164	Oracle DIVArchive Archive Capacity	Per Slot
L101165	Oracle DIVArchive Actor	Per Server
L101166	Oracle DIVArchive Manager	Per Server
L101167	Oracle DIVArchive Partial File Restore	Per Wrapper
L101168	Oracle DIVArchive Avid Connectivity	Per Server
L101169	Oracle DIVArchive Application Filtering	Per Server
L101170	Oracle DIVArchive Storage Plan Manager (2 storage plans are included with a DIVArchive Manager License)	Per Server
L101171	Oracle DIVAnet	Per Server
L101172	Oracle DIVAdirector	Per User
L101918	Oracle DIVArchive Export / Import	Per Server
L101919	Oracle DIVArchive Additional Archive Robotic System	Per Tape Library
L101920	Oracle DIVArchive Automatic Data Migration	Per Server

B

DIVArchive Configuration Files

This appendix includes copies of the original, unedited, DIVArchive Backup Service configuration files for both Windows and Linux. You must configure these files for your particular installation using a plain text editor (for example, Notepad or Notepad++). The included files are as follows:

- DIVArchive Backup Service Windows Configuration File
- DIVArchive Backup Service Linux Configuration File

DIVArchive Backup Service Windows Configuration File

```
# ----------------------------------------
# DIVArchive Backup Service Configuration File
# ----------------------------------------
#
# Syntax:
#
# [SET |set ]property_name=property_value
# If the first word is "SET", it is ignored but the rest of the line is read.
# Every space is significant. Do not put extra spaces before or after property
# names or values.
#
# Lines beginning with "#" or that do not contain an equal sign are ignored.

#*****************************************************************************
********************
# DIVArchive Backup Basic Settings
#*****************************************************************************
******************
#************************************IMPORTANT*********************************
********************
# Please use DIVArchive database installation package for installing Oracle.
# Please use DIVArchive Prerequisites package for installing CYGWIN.
# Please use / instead of \ for directory location path values throughout this
configuration file
#*****************************************************************************
********************

# WINDOWS SPECIFIC OPTION
# DIVArchive Backup service name
# This variable can be used to specify the name of the windows service.
# If this variable is used, the service name will be "DIVArchive Backup -
<SERVICE_NAME>".
# Default: If this variable is not used, the service name will be "DIVArchive
Backup".
```

```
# Default port is 9300.

#SERVICE_NAME=
# DIVArchive Backup service port
# This will be the port number on which Backup service will be listening.
# Default port is 9300.

SERVICE_PORT=9300

################################################################################
# MANAGER: Parameters for DIVArchive Manager
################################################################################

# The ip address and port of DIVArchive Manager
# Address default is "localhost". Port valid range is 1..65535. Default is 9000.

DIVAMANAGER_HOST=localhost
DIVAMANAGER_PORT=9000

################################################################################
####################
# Connection parameters for the database - Use same Database and user DIVArchive
Manager is connected
################################################################################
####################

# NB! For the following "Database" parameters no defaults will be assumed!

DIVAMANAGER_DBHOST=localhost
DIVAMANAGER_DBPORT=1521
DIVAMANAGER_DBUSER=diva
#Database Instance identifiers DIVAMANAGER_DBSERVICENAME & DIVAMANAGER_DBSID must
be set.
DIVAMANAGER_DBSERVICENAME=lib5.world
DIVAMANAGER_DBSID=lib5


################################################################################
####################
# BACKUP SERVICES
################################################################################
####################

#This parameter is used enable/disable Oracle database backups to be managed by
Backup Service. If set to 'N' Backup Service
# won't backup Oracle database. Default is 'Y'.
BACKUP_SERVICE_MANAGE_DATABASE_BACKUPS=Y

# This parameter is used enable/disable Metadata database backups to be managed by
Backup Service. If set to 'N' Backup Service
# won't backup Metadata database. Default is 'N'.
#
# If this parameter is set to 'Y' and metedata database path is not configured or
invalid and Metadata database is not enabled under
# Manager setting panle on Control GUI, Backup Service will fail to start.
BACKUP_SERVICE_MANAGE_METADATA_BACKUPS=N

################################################################################
# Backup Scripts & Cygwin location
# Please use / instead of \ for directory location path values
```

```
################################################################################
# Database Backup Script Location, The scripts are normally installed at
<DIVArchive_HOME>/programs/DBBackup/rman/bin during
# DIVArchive Installtion. Default is ../rman/bin
# If relative path is used, the start point must be from <DIVArchive_
HOME>/programs/DBBackup/bin.
SCRIPT_FILES_DIRECTORY=../rman/bin

#cygwin installation location, Default is C:/cygwin/bin
#Please use DIVArchive Prerequisites package for installing CYGWIN.
CYGWIN_BIN_DIRECTORY=C:/cygwin/bin

################################################################################
# Database Backup Configuration
# Please use / instead of \ for directory location path values
################################################################################

# Database backup Local destination. Default is H:/oraback/lib5
DB_BACKUP_LOCATION=H:/oraback/lib5

################ RSYNC SERVICE INSTALLATION & MODULE CONFIGURATION
#####################################################################

# Prerequisite -  Please read Fully
#----------------------------------
#   1) Main Manager & all Remote backup systems must install CYGWIN,RSYNC Service
and RSYNC module configured.
#
#   2) DIVArchive Backup service uses the RSYNC module in CYGWIN, so CYGWIN
installation is mandatory before installation RSYNC service.
#   3) Please use DIVArchive Prerequisites package, DIVArchive Prerequisites
package takes care of installing CYGWIN and RSYNC service
#   follow steps 2 to 4 on "RSYNC Service Installation & Module Configuration"
below to add a new RSYNC module.
#
#   4) If DIVArchive Prerequisites package is not used, Please Install CYGWIN and
make sure RSYNC package is is also installed during CYGWIN
#   Installation and follow steps 1 to 4 on "RSYNC Service Installation & Module
Configuration" below.

# RSYNC Service Installation & Module Configuration
# -------------------------------------------------
# This configuration is mandatory for all Main Manager & Remote backup systems.
#
#   1) Run the following command to install RSYNC service if it is not already
installed.
#      <CYGWIN_HOME>\bin\cygrunsrv -I rsyncd -d "RSYNC Daemon" --path
/usr/bin/rsync --args '--config=/etc/rsyncd.conf --no-detach --daemon --quiet' -e
CYGWIN='binmode tty nontsec'
#   2) Open <CYGWIN_HOME>\etc\rsyncd.conf
#   3) To add a new module add the following to rsyncd.conf
#      [Module Name]
#      path = <cygwin style path>
#      comment = <Description>
#
#      Example:
#      [ORACLE_BACKUP]
#      path = /cygdrive/h/oraback
#      comment = Oracle backups
#   4) Start RSYNC service from Windows service manager or execute <CYGWIN_
```

```
HOME>\bin\cygrunsrv -S rsyncd
################################################################################
#####################################################

# Database remote backup destination, no defaults will be assumed.
#
# All remote destination must be rsync service module name followed by Folder
name. Backups must not be copied to RSYNC module root.
# Multiple destinations can be used, delimited by comma. Default is
rsync://manager2/oraback/mgr1,rsync://actor3/oraback/mgr1
#
# Syntax : rsync://<Backup System ipaddress or hostname>/RSYNC_modulename/Folder
Name
#
#Example : rsync://172.16.3.203/ORACLE_BACKUP/Jan_2011/
#Example : rsync://172.16.3.203/ORACLE_BACKUP/Jan_
2011/,rsync://172.16.3.204/ORACLE_BACKUP/Jan_2011/

DB_BACKUP_REMOTE_
DESTINATIONS=rsync://manager2/oraback/mgr1,rsync://actor3/oraback/mgr1

########################## FULL DATABASE BACKUP SETTINGS
#####################################################
# Start up time for full database backup.
# FULL_BACKUP_START_HOUR_24 = Hour to start full database backup, valid range is 0
TO 23 , default value is 0 for midnight.
# FULL_BACKUP_START_MINUTE = Minute to start full database backup, Valid range is
0 TO 59, default value is 0.
# FULL_BACKUP_FREQUENCY_HOURS = Frequency to run full database backup in hours,
default is 24 hours.

#Example:

# To set full backup frequency to every 6 hours.
# FULL_BACKUP_FREQUENCY_HOURS=6

# To set full backup frequency to every 1 day and 5 hours.
# FULL_BACKUP_FREQUENCY_HOURS=29

################################################################################
############################

FULL_BACKUP_START_HOUR_24=0
FULL_BACKUP_START_MINUTE=0
FULL_BACKUP_FREQUENCY_HOURS=24

########################## DB INCREMENTAL BACKUP SETTINGS
#####################################################
# Incremental database backups have no startup time and are started as soon as
backup service starts.
# INCREMENTAL_FREQUENCY_MINUTES = Frequency to run incremental database backups in
minutes, default is 15 minutes.

#Example:
#To set incremental backup frequency to every 15 minutes.
#INCREMENTAL_FREQUENCY_MINUTES=15
################################################################################
############################

INCREMENTAL_FREQUENCY_MINUTES=15
```

```
############################## File Based Metadata Backup Configuration
################################################
# FBM_BACKUP_REMOTE_DESTINATIONS: FBM remote backup destination. All remote
destination must be rsync service module name
#  followed by Folder name. Backups must not be copied to RSYNC module root.
#  Multiple destinations can be used, delimited by comma.
#  Default is rsync://manager2/oraback/fbm,rsync://actor3/oraback/fbm.
#  Syntax : rsync://<Backup System ipaddress or hostname>/RSYNC_modulename/Folder
Name
#
# FBM_FREQUENCY_MINUTES = Frequency to run FBM backup in minutes, default is 15.
#
# Example:
# To set FBM backup frequency to every 15 minutes.
# FBM_FREQUENCY_MINUTES=15
#
# To set FBM backup frequency to every 3 hours and 15 minutes.
# FBM_FREQUENCY_MINUTES=195
#
# Notes:  Metadata database Must be enabled and Metadata database location must be
configured from Configuration Utility.
################################################################################
#######################################

FBM_BACKUP_REMOTE_
DESTINATIONS=rsync://manager2/oraback/fbm,rsync://actor3/oraback/fbm

FBM_FREQUENCY_MINUTES=15

################################ Recovery WINDOW & CLEANUP OBSOLETE BACKUP
CONFIGURATION ###################################
#
#
# DB_FBM_RECOVERY_WINDOW_DAYS =  Database and FBM recovery Window. This parameter
defined how days of oracle & FBM backup must be retained.
# Value must be > 0, Default is 10.
#
# Start up time for backup cleanup.
# CLEANUP_START_HOUR_24 = Hour to start backup cleanup, valid range is 0 TO 23 ,
default value is 2 in the morning.
# CLEANUP_START_MINUTE = Minute to start backup cleanup, Valid range is 0 TO 59,
default value is 0.
#
# Cleanup Frequency configures how frequently we want backup manager to check for
old backups taken beyond the recovery window and delete them.
# CLEANUP_FREQUENCY_HOURS = Frequency to run backup cleanup, default is 24.
#Example:
#
# To set backup cleanup frequency to every 6 hours.
# CLEANUP_FREQUENCY_HOURS=6
#
# To set full cleanup frequency to every 1 day and 5 hours.
# CLEANUP_FREQUENCY_HOURS=29
################################################################################
#####################################

DB_FBM_RECOVERY_WINDOW_DAYS = 10

CLEANUP_START_HOUR_24=2
```

```
CLEANUP_START_MINUTE=00
CLEANUP_FREQUENCY_HOURS=24

########################################## SERVER DISK STORAGE MONITORING
################################################
# MONITORED_DRIVES = User can mentione windows partion drives they want Backup
service to monitior. Default is C: & H:
# DISK_MIN_SPACE_THRESHOLD_PERCENT = Notification Threshold Percentage of
available space of each drive accessible by server
# DEFAULT VALUE IS 5 PERCENT
# If available space on media is is reached warning notifications will be sent
out.  If available space is 20 percent below the threshold
# an Error message will be sent out.
#############################################################################
########################################
MONITORED_DRIVES=C:,H:
DISK_MIN_SPACE_THRESHOLD_PERCENT=5
#*****************************************************************
# DIVArchive Backup Service Logging
#*****************************************************************

# Levels can be:  DEBUG, INFO, WARN, ERROR, FATAL
# The default value is INFO.
LOGGING_ROOT_LEVEL=INFO
LOGGING_TRACE_LEVEL=INFO
LOGGING_SERVICE_LEVEL=INFO

# File size should be specified using the convention:  #KB|MB
# The default value is 10MB.
LOGGING_MAXFILESIZE=10MB

# All files (trace, service and .zip) older than this will be removed
# hours
# The default value is 50.
LOGGING_LIFETIME=50
#############################################################################
# DIVArchive Backup Service Options
#
# The following service parameters should not be changed without
# the consent of FPD Support.
#############################################################################

# Level can be:  DEBUG, INFO, STATUS, ERROR, NONE
# To include thread dumps, set to DEBUG or INFO(default)
wrapper.logfile.loglevel=INFO

# The maximum size to allow Wrapper log files to reach before
# rolling.  File size should be specified using the convention: #k|m
wrapper.logfile.maxsize=1m

# Mode in which the service is installed. AUTO_START starts the
# service automatically when the system is rebooted.  DEMAND_START
# which requires that the service be started manually.
wrapper.ntservice.starttype=AUTO_START

# Time without CPU before JVM will issue warning and extend timeout
# (in sec).  Timeout will be extended by a few seconds at least once
# before the service shuts down.
#wrapper.cpu.timeout=30
```

```
# Number of seconds to allow between the time that the Wrapper
# launches the JVM process and the time that the JVM side of the
# Wrapper responds that the application has started.
wrapper.startup.timeout=60

# Number of seconds to allow between the wrapper pinging the JVM
# and the response
wrapper.ping.timeout=60

# Number of seconds to allow between the time that the Wrapper asks
# the JVM to shutdown and the time that the JVM side of the Wrapper
# responds that it is stopping.
wrapper.shutdown.timeout=60

# Java Library Path (Add location of OCI driver ex: ocijdbc11.dll if using
DIVAMANAGER_TNSNAME.
# Ex: wrapper.java.library.path=.;C:\app\oracle\product\11.1.0)
wrapper.java.library.path=.

# License Key for Java Service Wrapper
#encoding=UTF-8
wrapper.license.type=DEV
wrapper.license.id=201603080000006
wrapper.license.licensee=Oracle America, Inc.
wrapper.license.group=Oracle DIVArchive
wrapper.license.dev_application=DIVArchive Database Backup Service
wrapper.license.features=pro, 64bit
wrapper.license.upgrade_term.begin_date=2013-01-18
wrapper.license.upgrade_term.end_date=2017-01-18
wrapper.license.key.1=64c2-004c-65c3-d82c
wrapper.license.key.2=b684-4d62-fd87-c7b3
wrapper.license.key.3=6029-7fef-53c4-535b
wrapper.license.key.4=0117-6de0-03b2-4d0f
################################################################## CRITICAL
INFORMATION
##############################################################################
###
# PLEASE DO NOT MODIFY ANY OF THE BELOW PARAMETERS.
##############################################################################
##############################################################################
##########
FULL_BACKUP_COMMAND=%SCRIPT_FILES_DIRECTORY%full_backup %DIVAMANAGER_DBSID% %DB_
BACKUP_LOCATION% -syspwd=%DIVAMANAGER_DB_SYS_PASSWORD%@%DIVAMANAGER_
DBHOST%:%DIVAMANAGER_DBPORT%/%DIVAMANAGER_DBSERVICENAME%
INCREMENTAL_COMMAND=%SCRIPT_FILES_DIRECTORY%arch_backup %DIVAMANAGER_DBSID% %DB_
BACKUP_LOCATION% -syspwd=%DIVAMANAGER_DB_SYS_PASSWORD%@%DIVAMANAGER_
DBHOST%:%DIVAMANAGER_DBPORT%/%DIVAMANAGER_DBSERVICENAME%,rsync --delete -av
--include *.gz --include *.md5 --exclude=*.gz* --exclude=*.md5* --exclude=*.BCK
--exclude FAILED %DB_BACKUP_LOCATION% %DB_BACKUP_REMOTE_DESTINATIONS%
CLEANUP_COMMAND=%SCRIPT_FILES_DIRECTORY%delete_backup_obsolete %DIVAMANAGER_DBSID%
%DB_BACKUP_LOCATION% -syspwd=%DIVAMANAGER_DB_SYS_PASSWORD%@%DIVAMANAGER_
DBHOST%:%DIVAMANAGER_DBPORT%/%DIVAMANAGER_DBSERVICENAME% -keep=%DB_FBM_RECOVERY_
WINDOW_DAYS%
##############################################################################
##############################################################################
###########
```

DIVArchive Backup Service Linux Configuration File

```
# ----------------------------------------
# DIVArchive Backup Service Configuration File
# ----------------------------------------
#
# Syntax:
#
# [SET |set ]property_name=property_value
# If the first word is "SET", it is ignored but the rest of the line is read.
# Every space is significant. Do not put extra spaces before or after property
# names or values.
#
# Lines beginning with "#" or that do not contain an equal sign are ignored.

#*************************************************************************************
******************
# DIVArchive Backup Basic Settings
#*************************************************************************************
******************
#************************************IMPORTANT**********************************
******************
# Please use DIVArchive database installation package for installing Oracle.
#*************************************************************************************
******************

# DIVArchive Backup service name
# This variable can be used to specify the name of the service.
# If this variable is used, the service name will be "DIVArchive Backup - this
variable".
# Default: If this variable is not used, the service name will be "DIVArchive
Backup".

#SERVICE_NAME=

# DIVArchive Backup service port
# This will be the port number on which Backup service will be listening.
# Default port is 9300.
SERVICE_PORT=9300

#############################################################################
# MANAGER: Parameters for DIVArchive Manager
#############################################################################

# The ip address and port of DIVArchive Manager
# Address default is "localhost". Port valid range is 1..65535. Default is 9000.

DIVAMANAGER_HOST=localhost
DIVAMANAGER_PORT=9000

#############################################################################
###################
# Connection parameters for the database - Use same Database and user DIVArchive
Manager is connected
#############################################################################
###################

# NB! For the following "Database" parameters no defaults will be assumed!

DIVAMANAGER_DBHOST=localhost
```

```
DIVAMANAGER_DBPORT=1521
DIVAMANAGER_DBUSER=diva

#Database Instance identifiers DIVAMANAGER_DBSERVICENAME & DIVAMANAGER_DBSID must
be set.
DIVAMANAGER_DBSERVICENAME=lib5.world
DIVAMANAGER_DBSID=lib5

################################################################################
####################
# BACKUP SERVICES
################################################################################
####################
#This parameter is used enable/disable Oracle database backups to be managed by
Backup Service. If set to 'N' Backup Service
# won't backup Oracle database. Default is 'Y'.

BACKUP_SERVICE_MANAGE_DATABASE_BACKUPS=Y

# This parameter is used enable/disable Metadata database backups to be managed by
Backup Service. If set to 'N' Backup Service
# won't backup Metadata database. Default is 'N'.
#
# If this parameter is set to 'Y' and metedata database path is not configured or
invalid and Metadata database is not enabled under
# Manager setting panle on Control GUI, Backup Service will fail to start.
BACKUP_SERVICE_MANAGE_METADATA_BACKUPS=N

################################################################################
# Backup Scripts & Cygwin location
# Please use / instead of \ for directory location path values
################################################################################

# Database Backup Script Location, The scripts are normally installed at
<DIVArchive_HOME>/programs/DBBackup/rman/bin during
# DIVArchive Installtion. Default is ../rman/bin
# If relative path is used, the start point must be from <DIVArchive_
HOME>/programs/DBBackup/bin.
SCRIPT_FILES_DIRECTORY=../rman/bin

################################################################################
# Database Backup Configuration
################################################################################

# Database backup Local destination. Default is /u04/oraback/lib5
DB_BACKUP_LOCATION=/u04/oraback/lib5
################ RSYNC SERVICE INSTALLATION & MODULE CONFIGURATION
#####################################################################
# Prerequisite -  Please read Fully
#----------------------------------
#   1) Main Manager & all Remote backup systems must RSYNC Service and RSYNC
module configured.
#
#   2) DIVArchive Backup service uses the RSYNC service.
#   3) Please use DIVArchive Prerequisites package, DIVArchive Prerequisites
package takes care of installing CYGWIN and RSYNC service
#      follow steps 2 to 4 on "RSYNC Service Installation & Module Configuration"
below to add a new RSYNC module.
#
#   4) If DIVArchive Prerequisites package is not used, Please Install CYGWIN and
```

```
make sure RSYNC package is is also installed during CYGWIN
# Installation and follow steps 1 to 4 on "RSYNC Service Installation & Module
Configuration" below.

# RSYNC Service Module Configuration
# ------------------------------------------------
# This configuration is mandatory for all Main Manager & Remote backup systems.
#
#  2) Open /etc/rsyncd.conf
#  3) To add a new module add the following to rsyncd.conf
#     [Module Name]
#     path = <cygwin style path>
#     comment = <Description>
#
#     Example:
#     [ORACLE_BACKUP]
#     path = /u04/oraback
#     comment = Oracle backups
#   4) Start RSYNC service from Windows service manager or execute <CYGWIN_
HOME>\bin\cygrunsrv -S rsyncd
################################################################################
#####################################################

# Database remote backup destination, no defaults will be assumed.
#
# All remote destination must be rsync service module name followed by Folder
name. Backups must not be copied to RSYNC module root.
# Multiple destinations can be used, delimited by comma. Default is
rsync://manager2/oraback/mgr1,rsync://actor3/oraback/mgr1
#
# Syntax : rsync://<Backup System ipaddress or hostname>/RSYNC_modulename/Folder
Name
#
#Example : rsync://172.16.3.203/ORACLE_BACKUP/Jan_2011/
#Example : rsync://172.16.3.203/ORACLE_BACKUP/Jan_
2011/,rsync://172.16.3.204/ORACLE_BACKUP/Jan_2011/

DB_BACKUP_REMOTE_
DESTINATIONS=rsync://manager2/oraback/mgr1,rsync://actor3/oraback/mgr1

########################### FULL DATABASE BACKUP SETTINGS
#####################################################
# Start up time for full database backup.
# FULL_BACKUP_START_HOUR_24 = Hour to start full database backup, valid range is 0
TO 23 , default value is 0 for midnight.
# FULL_BACKUP_START_MINUTE = Minute to start full database backup, Valid range is
0 TO 59, default value is 0.
# FULL_BACKUP_FREQUENCY_HOURS = Frequency to run full database backup in hours,
default is 24 hours.

#Example:

# To set full backup frequency to every 6 hours.
# FULL_BACKUP_FREQUENCY_HOURS=6

# To set full backup frequency to every 1 day and 5 hours.
# FULL_BACKUP_FREQUENCY_HOURS=29

#####################################################################
FULL_BACKUP_START_HOUR_24=0
```

```
FULL_BACKUP_START_MINUTE=0
FULL_BACKUP_FREQUENCY_HOURS=24
######################### DB INCREMENTAL BACKUP SETTINGS
#####################################################
# Incremental database backups have no startup time and are started as soon as
backup service starts.
# INCREMENTAL_FREQUENCY_MINUTES = Frequency to run incremental database backups in
minutes, default is 15 minutes.

#Example:
#To set incremental backup frequency to every 15 minutes.
#INCREMENTAL_FREQUENCY_MINUTES=15
#############################################################################
##############################

INCREMENTAL_FREQUENCY_MINUTES=15

############################### File Based Metadata Backup Configuration
#################################################
# FBM_BACKUP_REMOTE_DESTINATIONS: FBM remote backup destination. All remote
destination must be rsync service module name
#  followed by Folder name. Backups must not be copied to RSYNC module root.
#  Multiple destinations can be used, delimited by comma.
#  Default is rsync://manager2/oraback/fbm,rsync://actor3/oraback/fbm.
#  Syntax : rsync://<Backup System ipaddress or hostname>/RSYNC_modulename/Folder
Name
#
# FBM_FREQUENCY_MINUTES = Frequency to run FBM backup in minutes, default is 15.
#
# Example:
# To set FBM backup frequency to every 15 minutes.
# FBM_FREQUENCY_MINUTES=15
#
# To set FBM backup frequency to every 3 hours and 15 minutes.
# FBM_FREQUENCY_MINUTES=195
#
# Notes:  Metadata database Must be enabled and Metadata database location must be
configured from Configuration Utility.
#############################################################################
#######################################

FBM_BACKUP_REMOTE_
DESTINATIONS=rsync://manager2/oraback/fbm,rsync://actor3/oraback/fbm

FBM_FREQUENCY_MINUTES=15

############################### Recovery WINDOW & CLEANUP OBSOLETE BACKUP
CONFIGURATION ###################################
#
#
# DB_FBM_RECOVERY_WINDOW_DAYS =  Database and FBM recovery Window. This parameter
defined how days of oracle & FBM backup must be retained.
# Value must be > 0, Default is 10.
#
# Start up time for backup cleanup.
# CLEANUP_START_HOUR_24 = Hour to start backup cleanup, valid range is 0 TO 23 ,
default value is 2 in the morning.
# CLEANUP_START_MINUTE = Minute to start backup cleanup, Valid range is 0 TO 59,
default value is 0.
#
```

```
# Cleanup Frequency configures how frequently we want backup manager to check for
old backups taken beyond the recovery window and delete them.
# CLEANUP_FREQUENCY_HOURS = Frequency to run backup cleanup, default is 24.
#Example:
#
# To set backup cleanup frequency to every 6 hours.
# CLEANUP_FREQUENCY_HOURS=6
#
# To set full cleanup frequency to every 1 day and 5 hours.
# CLEANUP_FREQUENCY_HOURS=29
################################################################################
####################################

DB_FBM_RECOVERY_WINDOW_DAYS = 10

CLEANUP_START_HOUR_24=2
CLEANUP_START_MINUTE=00

CLEANUP_FREQUENCY_HOURS=24
############################################ SERVER DISK STORAGE MONITORING
################################################
# MONITORED_DRIVES = User can mentione mounted drives they want Backup service to
monitior. Default is /u04 & /u05
# DISK_MIN_SPACE_THRESHOLD_PERCENT = Notification Threshold Percentage of
available space of each drive accessible by server
# DEFAULT VALUE IS 5 PERCENT
# If available space on media is is reached warning notifications will be sent
out.  If available space is 20 percent below the threshold
# an Error message will be sent out.
################################################################################
############################################
MONITORED_DRIVES=/u04,/u05
DISK_MIN_SPACE_THRESHOLD_PERCENT=5
#*****************************************************************
# DIVArchive Backup Service Logging
#*****************************************************************

# Levels can be:  DEBUG, INFO, WARN, ERROR, FATAL
# The default value is INFO.
LOGGING_ROOT_LEVEL=INFO
LOGGING_TRACE_LEVEL=INFO
LOGGING_SERVICE_LEVEL=INFO

# File size should be specified using the convention:  #KB|MB
# The default value is 10MB.
LOGGING_MAXFILESIZE=10MB

# All files (trace, service and .zip) older than this will be removed hours
# The default value is 50.
LOGGING_LIFETIME=50

################################################################################
# DIVArchive Backup Service Options
#
# The following service parameters should not be changed without
# the consent of FPD Support.
################################################################################

# Level can be:  DEBUG, INFO, STATUS, ERROR, NONE
# To include thread dumps, set to DEBUG or INFO(default)
```

```
wrapper.logfile.loglevel=INFO

# The maximum size to allow Wrapper log files to reach before
# rolling.  File size should be specified using the convention: #k|m
wrapper.logfile.maxsize=1m

# Mode in which the service is installed. AUTO_START starts the
# service automatically when the system is rebooted.  DEMAND_START
# which requires that the service be started manually.
wrapper.ntservice.starttype=AUTO_START

# Time without CPU before JVM will issue warning and extend timeout
# (in sec).  Timeout will be extended by a few seconds at least once
# before the service shuts down.
#wrapper.cpu.timeout=30

# Number of seconds to allow between the time that the Wrapper
# launches the JVM process and the time that the JVM side of the
# Wrapper responds that the application has started.
wrapper.startup.timeout=60

# Number of seconds to allow between the wrapper pinging the JVM
# and the response
wrapper.ping.timeout=60

# Number of seconds to allow between the time that the Wrapper asks
# the JVM to shutdown and the time that the JVM side of the Wrapper
# responds that it is stopping.
wrapper.shutdown.timeout=60

# Java Library Path (Add location of OCI driver ex: ocijdbc11.dll if using
DIVAMANAGER_TNSNAME.
# Ex: wrapper.java.library.path=.)
wrapper.java.library.path=.

# License Key for Java Service Wrapper
#encoding=UTF-8
wrapper.license.type=DEV
wrapper.license.id=201603080000006
wrapper.license.licensee=Oracle America, Inc.
wrapper.license.group=Oracle DIVArchive
wrapper.license.dev_application=DIVArchive Database Backup Service
wrapper.license.features=pro, 64bit
wrapper.license.upgrade_term.begin_date=2013-01-18
wrapper.license.upgrade_term.end_date=2017-01-18
wrapper.license.key.1=64c2-004c-65c3-d82c
wrapper.license.key.2=b684-4d62-fd87-c7b3
wrapper.license.key.3=6029-7fef-53c4-535b
wrapper.license.key.4=0117-6de0-03b2-4d0f

################################################################## CRITICAL
INFORMATION
################################################################################
###
# PLEASE DO NOT MODIFY ANY OF THE BELOW PARAMETERS.
################################################################################
################################################################################
##########
FULL_BACKUP_COMMAND=%SCRIPT_FILES_DIRECTORY%full_backup %DIVAMANAGER_DBSID% %DB_
BACKUP_LOCATION% -syspwd=%DIVAMANAGER_DB_SYS_PASSWORD%@%DIVAMANAGER_
```

```
DBHOST%:%DIVAMANAGER_DBPORT%/%DIVAMANAGER_DBSERVICENAME%
INCREMENTAL_COMMAND=%SCRIPT_FILES_DIRECTORY%arch_backup %DIVAMANAGER_DBSID% %DB_
BACKUP_LOCATION% -syspwd=%DIVAMANAGER_DB_SYS_PASSWORD%@%DIVAMANAGER_
DBHOST%:%DIVAMANAGER_DBPORT%/%DIVAMANAGER_DBSERVICENAME%,rsync --delete -av
--include *.gz --include *.md5 --exclude=*.gz* --exclude=*.md5* --exclude=*.BCK
--exclude FAILED %DB_BACKUP_LOCATION% %DB_BACKUP_REMOTE_DESTINATIONS%
CLEANUP_COMMAND=%SCRIPT_FILES_DIRECTORY%delete_backup_obsolete %DIVAMANAGER_DBSID%
%DB_BACKUP_LOCATION% -syspwd=%DIVAMANAGER_DB_SYS_PASSWORD%@%DIVAMANAGER_
DBHOST%:%DIVAMANAGER_DBPORT%/%DIVAMANAGER_DBSERVICENAME% -keep=%DB_FBM_RECOVERY_
WINDOW_DAYS%
########################################################################
```