

Database Objects

Installation and Configuration Guide

PUBLISHED BY

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Revision History

September 2005
December 2005

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Table of Contents

Overview	1
Before You Begin	1
Database Objects Installer	1
Installer Worksheet	2
Extract Setup File	3
Installing the Database Objects	3
Correcting Entry Errors	4
Partial Installs	4
Correcting Oracle Errors	5
Rerun the Installation Script	5
Database Reference Information	5
Init.ora Parameters	5
Database Character Set Recommendations.....	6
Database Setup Information	6
Configuring the Database [OPTIONAL].....	7
Database Jobs	7
Configuration of Database Jobs (General).....	7
mdClassifieds/mdRealEstate/mdTransit Configuration.....	9
Ad Retention.....	9
Database Jobs (mdClassifieds/mdRealEstate/mdTransit)	9
PSearch Configuration	11
Database Jobs (PSearch)	11
Database Email Configuration.....	12
Version/Patches	12
OS Kernel Parameters (Unix/Linux).....	12
Support Information	13

Overview

This manual provides instructions for the installation and configuration of the database objects used by MDW applications. It is intended for DBAs or OS users that have sufficient privileges to the Oracle software and database.

Note: Please read the entire install section before attempting installation.

Before You Begin

Prior to installing the database objects, ensure that the following conditions are met:

- Oracle software is installed (version 9.2.0.6 or later).
- Oracle database has been created with the required block size (`DB_BLOCK_SIZE >= 8192`), and appropriate character set. (See “Database Character Set Recommendations” on page 6 for more information.)
- `COMPATIBLE` init parameter has been set to 9.0.0 or higher.
- A good backup of the database has been created. (This will make it easier to rerun the installation if errors occur. A cold backup will make recovery much simpler.)

Database Objects Installer

A database objects installer, `MDW_DBSETUP`, has been provided to step you through your database objects installation. However, prior to running the `dbsetup` script, prepare the following Installer Worksheet to have all the values you need readily available as the installer prompts you for them.

Installer Worksheet

Before running the database objects setup script, you will need the following information:

DATABASE NAMES	
ORACLE_HOME	
ORACLE_SID	
Fully-qualified hostname of database server	
Note: In the following Datafile sections, it is recommended to keep the default tablespace names, if possible. The defaults are in brackets.)	
DATA DATAFILE INFORMATION	
Data tablespace name [default=MDW]	
Data datafile (full path)	
Initial Data datafile size	
Use Autoextend for this datafile [Y]	
Autoextend next size (if using autoextend)	
Autoextend max size (if using autoextend)	
INDEX DATAFILE INFORMATION	
Index tablespace name [default=MDW_INDEX]	
Index datafile (full path)	
Initial Index datafile size	
Use Autoextend for this datafile [Y]	
Autoextend next size (if using autoextend)	
Autoextend max size (if using autoextend)	
LOB DATAFILE INFORMATION	
LOB tablespace name [default=MDW_LOB]	
LOB datafile (full path)	
Initial LOB datafile size	
Use Autoextend for this datafile [Y]	
Autoextend next size (if using autoextend)	
Autoextend max size (if using autoextend)	
MISCELLANEOUS	
Temporary tablespace name (must already exist)	
CTXSYS user password	

mdCLASSIFIEDS, mdREALESTATE, AND mdTRANSIT LICENSEES ONLY INFO:	
Are you licensed for any of the above MDW products [N]	
Fully-qualified hostname of SMTP server	
Domain name of SMTP server	
Recipients of archival (archive ads) job. Multiple addresses allowed; separate each address with a comma. (This is optional and can be configured later.)	
Recipients of expiration (expire ads) job. Multiple addresses allowed; separate each address with a comma. (This is optional and can be configured later.)	

Extract Setup File

The installer MDW_DBSETUP is deployed in a tarball and must be extracted before install.

To extract the dbsetup file:

1. Copy the mdw_dbsetup.tar.gz file to a directory of your choosing.
2. Change to that directory.
3. Enter the following to unzip the file:
\$ gzip -d mdw_dbsetup.tar.gz
4. Enter the following to extract the files:
\$ tar -xvf mdw_dbsetup.tar

Installing the Database Objects

Once the Installer Worksheet has been completed and you have extracted the dbsetup file, you are now ready to install the database objects.

Warning: A user in the sysdba OS GROUP must run the setup script. Typically this is the Oracle user.

1. Using command line, execute the setup script by entering:

```
./mdw_dbsetup
```
2. The installation begins, and you may see warning messages that refer to compilation errors during the creation of stored procedures. This is normal and can be safely ignored.
3. Enter the worksheet information requested by each prompt.
4. Enter **Y** at the last prompt if all information entered from the Installer Worksheet is correct.

5. Look to see that the script successfully completes. If so, the following lines display:

```
Database setup is complete
```

```
Review the *.out and *.log files for errors
```

6. Your installation is now complete. Should errors prevent complete setup, use the information in the next three sections to achieve a successful database objects installation.
7. Go to the “Database Reference Information” to enter the *Init.ora* parameters to finish your setup.

Correcting Entry Errors

Your worksheet should be completed beforehand to decrease the time and errors that might occur as the installer prompts you to enter the database information. However, if you make an error while entering the worksheet information :

1. Quit the system (enter **Q**) and enter **Y** to save information already entered.
2. Restart the installer. The installer executes and retains the information you previously entered.
3. Step back through the install and make corrections to the line(s) you enter incorrectly and complete the installation.

At the last prompt, if you find an error when you compare the worksheet information against what you’ve entered:

1. Enter **N** to exit the installer and correct the information.
2. Follow the instructions above for restarting the installer.

Partial Installs

If during an install you decide you must stop the process before it completes, quit the system and enter **Y** to save information entered. **The system saves all Installer Worksheet information entered, and this information becomes the new defaults the next time the installer is run.**

To complete the dbsetup, run the installer again, accept the new defaults you previously entered, and add the new information you did not complete on the previous install.

Correcting Oracle Errors

If an Oracle error occurs during setup, the installation aborts and displays an error message. In addition, the installation process produces several *.out files containing output from the SQL scripts.

While it's a good idea to review the *.out and *.log files for errors after a successful install, it's crucial to help diagnose any errors received.

Rerun the Installation Script

Depending on the error, you may be able to make the necessary corrections and attempt the installation again. To rerun the installation:

1. Shutdown the instance.
2. Restore the database.
3. Make necessary corrections (contact MDW if needed).
4. Restart the database.
5. Rerun the installation script.

If errors persist, contact your Technical Support representative.

Database Reference Information

To finish your database objects setup, enter the following recommended parameters.

Init.ora Parameters

Mandatory:

- JOB_QUEUE_PROCESSES >= 4
- NLS_DATE_FORMAT = 'DD-MON-RR'
- COMPATIBLE = database version (e.g. "9.2.0")
- QUERY_REWRITE_ENABLED = TRUE
- QUERY_REWRITE_INTEGRITY = TRUSTED

(The last two parameters are required to allow the optimizer to use function-based indexes.)

Recommended:

- OPEN_CURSORS: >= 300
- PROCESSES: >= 200
- SORT_AREA_SIZE: >= 1MB
- SORT_AREA_RETAINED_SIZE: same as SORT_AREA_SIZE
- JAVA_POOL_SIZE: >= 20MB
- CURSOR_SHARING = FORCE, due to minimal use of bind variables in the application.

Database Character Set Recommendations

Additionally, the database character set should support any languages your environment may require. It is highly recommended that you choose a character set other than US7ASCII, even if you anticipate supporting English only. WE8ISO8859P1 (or WE8ISO8859P15 if you need the Euro currency character) is a good choice, as it includes Western European languages (e.g., French, Spanish) as well as English. It may be necessary to use a Unicode character set to accommodate a more diverse language population. Refer to the Oracle documentation (*Globalization Support Guide*) for more information.

Database Setup Information

The following database schemas are created in the database:

- MDW_AD
- MDW_BIZ
- MDW_DYNAPUB
- MDW_LOG_REPORT
- MDW_REG
- MDW_TAXONOMY
- MDW_UTIL

Note: Although all of these schemas are created and contain objects, only those needed by your licensed MDW applications are actually used.

There are three tablespaces used, one each for tables, indexes, and LOBs. The default names for these tablespaces are (respectively):

- MDW
- MDW_INDEX
- MDW_LOB

Configuring the Database [OPTIONAL]

This section covers general database configuration, followed by some product-specific configuration information. However, unless you wish to change the defaults, no configuration is required.

Use this section whenever you wish to change the defaults.

Database Jobs

The SYS.DBMS_JOB package executes stored procedures that sync the Intermedia Text indexes and gather statistics for the MDW schemas. The frequency at which these jobs run can be configured to meet your business rules. This package also executes some product- (i.e., schema-) specific jobs (see the following product-specific sections below). Certain jobs related to products that you have not purchased (specifically those jobs that send email) are disabled by default. There is no need for these jobs to run unless you are running the products that utilize those jobs.

Configuration of Database Jobs (General)

Note: The SQL statements in this section and those that follow can be used if you do not have access to any third-party or GUI tools that allow you to view/maintain DBMS jobs.

The jobs that sync and optimize the Text indexes are owned by user CTXSYS. The sync jobs call the stored procedure CTXSYS.CTX_DDL.SYNC_INDEX(). Intermedia Text indexes need to be synced to process any inserts, updates, or deletes that have affected the indexed columns, since these DML activities aren't reflected in the indexes until the indexes are resynced. The default is to sync each index every 10 minutes. You can specify how often you want to sync each index by using the SYS.DBMS_JOB.INTERVAL(job, interval) procedure, where interval is expressed in days. The job argument is the id of the job. To obtain the job's id, and current job call (the "what" column) use the following query:

```
select job, what
from dba_jobs
where schema_user = 'CTXSYS';
```

Once you have the job's id, you can reset its interval. For example, to change job 14 to run every 30 minutes, execute this command:

```
exec sys.dbms_job.interval(14, 'sysdate + 30 / (24 * 60)');  
commit;
```

The `CTXSYS.CTX_DDL.OPTIMIZE_INDEX()` procedure is used to maintain the efficiency of indexes. By default indexes are optimized weekly. You can change this interval using the same method previously given for configuring the sync index jobs.

In addition to the Intermedia Text index maintenance jobs, there is one job in each MDW schema that gathers statistics for that schema. By default these jobs run once weekly. The methods above for querying and modifying the CTXSYS jobs can be applied to these statistics-gathering jobs as well.

mdClassifieds/mdRealEstate/mdTransit Configuration

Ad Retention

Ads are archived based on the category they're in. Each category can be marked to have its ads archived or not. This setting can be updated via Template Manager, one of the GUI user applications. The default setting when a new category is created is *not* to archive the ads in that category. The stored procedure that archives ads takes as one of its parameters the number of days to keep ads online after they've expired (i.e. the end date has passed). All of these values are fully configurable via modification of the jobs that execute the stored procedures.

Database Jobs (mdClassifieds/mdRealEstate/mdTransit)

In mdClassifieds/mdRealEstate/mdTransit, there are a few jobs in the MDW_AD schema related to classified ad data. To get the information needed to change these jobs, run the following query:

```
select job, what
from dba_jobs
where schema_user = 'MDW_AD';
```

There is one materialized view used for ad features. The `SYS.DBMS_REFRESH.REFRESH()` procedure is used to refresh this view. The default is to refresh the view every 10 minutes. Use the `SYS.DBMS_JOB.INTERVAL(job, interval)` procedure to change this interval.

There are two jobs that, by default, run nightly. The first job archives ads and the second job expires ads. It is recommended that you not change the interval of these two jobs unless you change the times that the jobs run. To change the time at which a job executes, use the `SYS.DBMS_JOB.NEXT_DATE(job, next_date)` procedure. Use the query above to get the job number to change. For example, if job 21 normally runs at 1:00 AM and you want to have it run at 2:00 AM, execute the following (assuming the current date is 08/20/2002):

```
exec sys.dbms_job.next_date(21, to_date('08/21/2002 02:00',
'MM/DD/YYYY HH24:MI'));
commit;
```

You will also need to change the interval:

```
exec sys.dbms_job.interval(21, 'trunc(sysdate + 1) + 2/24');
commit;
```

Note how the interval was expressed in the last example. You can specify `sysdate + 1` as an interval for jobs that run once daily; however, the interval starts at the time the job completes. This means that if a job starts at 2:00 AM but takes 30 minutes to run, an interval of `sysdate + 1` will cause the job to begin at 2:30 AM the following day, and at 3:00 AM the day after. These cumulative changes would eventually cause the job to run much later than planned, which might adversely impact other production activities. Specifying the interval as `trunc(sysdate + 1) + 2/24` forces the job to start at 2:00 AM every day regardless of when it completes.

Ad archiving is handled by the `MDW_AD.AD_MAINT.ARCHIVE_ADS(cutoff_date, sender, recipients)` procedure. The default value for `cutoff_date` is `sysdate - 8`. Ads with `end_dates` before the `cutoff_date` will be archived. Setting the `cutoff_date` to `sysdate - 8` allows ads to be available online for a week after they've expired. This allows users to view last Sunday's ads in addition to the current day's ads, which is a fairly popular feature. The ad archiving process will email a message containing the number of ads archived. The email will be sent "from" the email address supplied in the `sender` argument. The recipient's argument is a comma-separated list of email addresses to receive the output of the ad archiving process. Should an error occur, the email message would contain the text of the error. (See *Database Email Configuration* below, for instructions on configuring the stored procedure that sends the email.)

The procedure to expire ads, `MDW_AD.AD_MAINT.EXPIRE_ADS(sender, recipients)`, is similar to the procedure that archives ads. However, it takes only `sender` and `recipients` as arguments. This procedure sets the ad status to 'EXPIRED' for all ads whose `end_date` has passed. An email will be sent indicating the number of ads that were expired; if an error occurs, the email will contain the text of the error.

To change the arguments for these jobs use the `SYS.DBMS_JOB.WHAT(job, what)` procedure. For example, let's say you want to change the recipient's argument for the expiration job. First, run the following query to get the current job calls (the "what" column):

```
select job, what
from dba_jobs
where schema_user = 'MDW_AD';

JOB WHAT
-----
21 ad_maint.archive_ads(sysdate - 8, 'ad_archiver@mydomain.com',
'john@mydomain.com');
28 ad_maint.expire_ads('ad_expirer@mydomain.com',
'john@mydomain.com');
```

To change the recipient's argument to "bob@mydomain.com", enter:

```
exec sys.dbms_job.what(28,  
'ad_maint.expire_ads(''ad_expirer@mydomain.com'',  
''bob@mydomain.com'');');  
commit;
```

Note: Quotes within the "what" argument have to be passed as two single quotes.

It should be noted that the classified ad renderers (both static and dynamic) take a publication's time zone setting, also set through Template Manager, into account when retrieving ads. However, the ad expiration job does not.

Therefore, an allowance needs to be made for this when scheduling the time that the ad expiration job runs. In general the allowance should be the number of hours difference between the time zone where the database server resides and the time zone of the publication that is furthest behind the database server's time zone. For example, if the database server is in the Eastern Time zone, and there is a publication in the Pacific Time zone, the allowance is three hours and the ad expiration job should not run before 3:00 AM. Similarly, if the database server is the same time zone as all of the publications, or if the database server is in a time zone that is behind all of the time zones for the publications, the ad expiration job can run just after midnight.

PSearch Configuration

Database Jobs (PSearch)

If you are using the Persistent Search feature of mdClassifieds/mdRealEstate, there are two additional jobs that will need to be configured. Both of these jobs are in the MDW_REG schema. The first job, MDW_REG.PSEARCH_AUDITOR.EXPIRE_PSEARCH(sender, recipients), is used to expire stored searches whose expiration date has been reached. An email will be sent indicating the number of ads that were expired; if an error occurs, the email will contain the text of the error. (See *Database Email Configuration* below for instructions on configuring the stored procedure that sends the email.) A second job, MDW_REG.PSEARCH_AUDITOR.DELETE_PSEARCH_EMAIL_LOG(days_past, sender, recipients), is used to remove entries from the email log that are older than days_past old. The default is to keep 60 days worth of log entries. These jobs can be viewed/modified using the methods shown above, except substitute MDW_REG for MDW_AD:

```
select job, what  
from dba_jobs  
where schema_user = 'MDW_REG';
```

Database Email Configuration

Note: Unless you are executing one of the above database jobs that send email, you will not need to perform this configuration.

There are a few database jobs that email output to designated recipients. For these jobs (expire/archive classified ads, expire PSearch, delete PSearch email logs), there is a stored procedure that gets called to send the email notifications. This procedure, `MDW_UTIL.SEND_EMAIL`, needs to be configured to use a valid SMTP server to which it will connect. The following variables need to be set:

`v_smtp_server` – fully qualified name of the SMTP server to connect to

`v_smtp_domain` – domain of the SMTP server

Version/Patches

Our software is tested to run on versions 8.1.7 and 9.2.0 of Oracle Enterprise Edition; however, we recommend applying the latest patch set available for your platform.

OS Kernel Parameters (Unix/Linux)

- `SEMMNS`: 2 x `PROCESSES` parameter in `init.ora`
- `SHMMAX`: large enough to accommodate the size of the SGA.

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Morris DigitalWorks (MDW), a division of Morris Communications Co., provides tools, technologies, consulting and Web development services to Morris newspapers and external clients. MDW award-winning technologies include world-class hosting facilities, robust content management software, high performance application tools, site enhancement tools, and comprehensive classified and display classified technology. Founded in 1995, Morris DigitalWorks has over 100 employees with offices in Topeka, KS, Joplin, MO, New York, NY and headquartered in Augusta, GA. An additional 250 MCC employees also participate in our Internet business and report directly to newspapers, magazines, book publishing and other internal organizations.

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