Oracle® Utilities Work and Asset Management

Business Intelligence User Guide

Release 1.9

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Business Intelligence

Oracle Utilities Business Intelligence (BI) for Oracle Utilities Work and Asset Management uses extraction programs packaged with the Oracle Utilities Application Framework (OUAF). The extraction programs for WAM are written in PL/SQL and are loaded into BI using OUAF.

Users can view batch control records, submit batch jobs and view the batch run tree using the Oracle Utilities Work & Asset Management application.

This section describes the configurations required in Oracle Utilities Work and Asset Management only. For complete Oracle Utilities Business Intelligence implementation and configuration guidelines refer to the online documentation within BI.

Note: It is recommended that you read this entire document before beginning installation.

Topics

Basic Steps to Get Started

1. **Enable the WAM BI database triggers using Installation Parameters.**
2. **Setup the BI Batch procedure, SDBP_BI_EXTRACT_HANDLER, in the Job Manager module.**
3. **Configure the OUBI Setup Business Rule.**
4. **Verify sequence numbering for SA_CHANGE_LOG in the Sequence Numbering module.**
5. **Run the batch procedure, SDBP_BI_EXTRACT_HANDLER.**

Multiple Plants

If you have multiple plants all configuration settings must be configured and executed separately for each.

Extract Output

A folder for the extraction file output is required to be created on the database server using the database server operating system. This directory is referred to as the "BI Extract output folder". A database object called a "Directory" needs to be created to point to this folder on the database server file system.

Default

The WAM installation is delivered with a pre-configured database directory object that is defaulted to "**c:\bi_extract**". This serves as a target folder for extracted files. **SD_BI_OUTBOUND** is the directory object in the database that maps to the output directory folder for the BI extracts.

Override the Default

This default can be overridden at the database level by running the following script:

```
CREATE OR REPLACE DIRECTORY sd_bi_outbound AS '<operating system folder
name>'
/
```

Steps to Create the Database Object
1. **The Directory object must be created by a user with DBA privileges.**
2. **Create the directory object referencing your output folder.**
   To override the default, run the script indicated above.

3. **Grant privileges to the Directory to the user that will be executing the extract routines. This is the same user that will be creating the objects in the WAM Job Scheduler.**
   grant read on directory SD_BI_OUTBOUND to synergen;

   grant write on directory SD_BI_OUTBOUND to synergen;

Batch Procedure

The batch procedure, SDBP_BI_EXTRACT_HANDLER, handles and calls all of the extract programs. You can monitor this processing in the Job Manager and the Job Manager Log modules. SDBP_BI_EXTRACT_HANDLER also handles incrementing the value of the sequence number whenever an incremental extract is requested.

Business Rules
OUBI Setup Rule

Configure settings to determine which extracts will be completed during regular processing. This rule can also be used to define extraction details such as data source, file names and the output directory. If desired, any extract can be turned OFF so that it is not included in the overall extraction.

Common Extract Parameters
The first rule key, COMMON EXTRACT PARAMETERS, defines parameters for all of the extracts that are turned ON. The key values for this rule key differ slightly from the key values for the remaining rule keys.

Value is left blank for this rule key.

Value2 is the name of the directory object in the database. This corresponds to the output folder of the extract, SD_BI_OUTBOUND.

Value3 is the Data Source Indicator. Default value is '3'

Value4 controls which type of extract will be executed. A value of INI means the extract will produce an Initial Extract, an INC means an Incremental Extract. The default value is INI.

After an Initial Extract, the value is automatically updated to INC by SDBP_BI_EXTRACT_ HANDLER so that the succeeding extracts are incremental.

General Key Names and Values
Value controls whether the extract is executed. Default value is ON.

Value2 is the base extract file name. This is the extract identifier used in building the names of the extract files.

Value3 and Value4 only apply to the Key Name OUBI INV SNAPSHOT. The goal of this metric is to compare inventory levels of like stock items based on periodic snapshots of the quantities in the storeroom. This is not a metric used to compare inventory movement because it does not deal with the transaction volume.

This requires two parameters to be passed to the procedures:

Value3 - Type of Increment - Monthly or Daily

Value4 - Number of Historical Snapshots - Any number

Sequence Numbering

Sequence Numbering must be turned on for SA_CHANGE_LOG to control the batch number field of the SA_CHANGE_LOG table. The Oracle Utilities Business Intelligence triggers use the value of this sequence number to uniquely identify records inserted into the SA_CHANGE_LOG table.

Initial Load and Incremental Load

Settings for the OUBI Setup Business Rule COMMON EXTRACT PARAMETERS rule key determine how the data is initially loaded as well as the incremental data loads.

Initial Load

The Initial Load of the extracts will query ALL records from the target tables and sends the entire set of source data to BI. This load is filtered by PLANT. There is no additional filtering applied to the source information. For example, the Account Transactions Extract targets the SA_ACCOUNT_LOG table as the source information. The initial load will take all records in the SA_ACCOUNT_LOG table and send the records to BI.

If you need to extract records from another plant, the batch job, SDBP_BI_EXTRACT_HANDLER, must be for the other PLANT and executed. Same with the Incremental extracts.

Incremental Load

The Incremental Load is based on information found in the SA_CHANGE_LOG table. Records are inserted into this table from a set of BI extract database triggers placed on various tables in the WAM application. The incremental extracts begin to have data in the files after the BI triggers have been enabled in the WAM database schema. If a record is recorded in the SA_CHANGE_LOG, a transaction is set to BI.

Error Handling

Errors will not occur unless there is a problem with the extracted data or with configuration settings. If errors are encountered, they will be noted in the Job Manager Log module. Correct any errors then re-run an Initial Load.

To Rerun an Initial Load

1. **Open the OUBI Setup Business Rule.**
2. **Set the Common Extract Parameters rule key to 'INI.'**
3. **Execute the batch job, SDBP_BI_EXTRACT_HANDLER.**
   After an Initial Extract, the business rule value is automatically updated to INC by SDBP_BI_EXTRACT_HANDLER so that the succeeding extracts are incremental.

File Name Conventions and Outputs

File Names follow the standard naming convention expected by OUBI. The OUBI Setup Business Rule handles the prefix file name for all the extracts. This is the value under the Value2 column. These filenames cannot be modified. The structure is indicated here to provide insight into how information can be determined from the file name.

Example: EXTDASSE0000030000000021001.<extension name>

- Extract Identifier: No limit on the size

- Data Source Indicator: Next 6 characters

- Batch Number: Next 10 characters

- Thread Number: Next 3 characters

Each extract produces two files: *.DAT and *.CTL.

- **DAT** files contain the actual extract data from the WAM tables.

- **CTL** files are used by Oracle Utilities BI for log and upload trace details. The file contains one line of information which consists of:

  - Batch Code: First 8 characters

  - Data Source Indicator: Next 6 characters

  - Batch Number: Next 10 characters

  - Thread Number: Next 10 characters

  - Line Count (on the DAT file): Next 10 characters

  - Batch Code Description: Next 60 characters

SABI Triggers

SABI triggers insert data into the SA_CHANGE_LOG table in preparation for extraction. The triggers use sequence number settings to determine the next batch number for the extraction.

The following triggers are used:

bi_adiu_acct_data	bi_adiu_actg_log
bi_adiu_actperdates	bi_adiu_asset
bi_adiu_assetdown	bi_adiu_auth_stt
bi_adiu_catalog	bi_adiu_dept
bi_adiu_dept_oa	bi_adiu_failure
bi_adiu_op_actg_tr_ty	bi_adiu_ouom
bi_adiu_repair	bi_adiu_rootcause
bi_adiu_rule_key_oex	bi_adiu_rulekey_stt
bi_adiu_storeroom	bi_adiu_strm_setup
bi_adiu_strm_trans	bi_adiu_tracwrkordtcr
bi_adiu_tracwrkordtpl	bi_adiu_wrkord
bi_adiu_wrkordadjust	bi_adiu_wrkordlbr
bi_adiu_wrkordmat	bi_adiu_wrkordrequire
bi_adiu_wrkordservcont	bi_adiu_wrkordtask
bi_adiu_wrkordtfail	bi_adiu_wrkordty

Extracts

The following section maps the extract program to the data that it handles as well as the view, batch procedure and trigger that are used to complete the extraction.

To Review the Columns that are Extracted

Access the database and describe the definition of the view. From there you can see the specific columns that comprise the view.

For example, in SQL Plus:

```
SELECT
 *
FROM SYNERGEN.SV_BI_EXTRACT_EXTDFAIL Vw
```

Codes, Triggers, Extracts and Views

Batch CODE	Table Name/Trigger Name	PK1	PK2	PK3	Extract Name	View Name
EXTDWOTY	sa_authority (sabi_wrkordty.sql)	table_no	code	plant	bi_adiu_ext_wo_type	sv_bi_extract_extdwoty
EXTDWRKP	sa_rule_key (sabi_tracwrkordtpl.sql)	rule_id	key_name	plant	bi_adiu_ext_wotask_planner	sv_bi_extract_extdwrkp
EXTDOPAC	sa_account_data (sabi_acct_data.sql)	account_no	plant		bi_adiu_ext_op_acct	sv_bi_extract_extdopac
EXTDWRKC	sa_crew (sabi_tracwrkordtcr.sql)	crew	plant		bi_adiu_ext_wotask_crew	sv_bi_extract_extdwrkc
EXTFOPAT	sa_account_log (sabi_actg_log.sql)	transaction_id			bi_adiu_ext_op_acct_trans	sv_bi_extract_extfopat
EXTDFPER	sa_account_period_dates (sabi_actperdates.sql)	period_year	period_month	plant	bi_adiu_ext_fiscal_per	sv_bi_extract_extdfper
EXTDASSE	sa_asset (sabi_asset.sql)	asset_id	asset_record_type	plant	bi_adiu_ext_asset	sv_bi_extract_extdasse
EXTFWRKT	sa_work_order_task(sabi_wrkordtask.sql)	work_order_no	plant	work_order_task_no	bi_adiu_ext_wotask	sv_bi_extract_extfwrkt
	sa_work_order_task_failure/sabi_wrkordtfail	work_order_no	plant	work_order_task_no	bi_adiu_ext_wotask	sv_bi_extract_extfwrkt
	sa_work_order_adjustment/ sabi_wrkordadjust	work_order_no	plant	work_order_task_no	bi_adiu_ext_wotask	sv_bi_extract_extfwrkt
	sa_work_order_labor/sabi_wrkordlbr	work_order_no	plant	work_order_task_no	bi_adiu_ext_wotask	sv_bi_extract_extfwrkt
	sa_work_order_material/sabi_wrkordmat	work_order_no	plant	work_order_task_no	bi_adiu_ext_wotask	sv_bi_extract_extfwrkt
	sa_work_order_requirement/sabi_wrkordrequire	work_order_no	plant	work_order_task_no	bi_adiu_ext_wotask	sv_bi_extract_extfwrkt
	sa_work_order_service_contract/sabi_wrkordservcont	work_order_no	plant	work_order_task_no	bi_adiu_ext_wotask	sv_bi_extract_extfwrkt
EXTDOATT	sa_authority (sabi_op_actg_tr_ty.sql)	table_no	code	plant	bi_adiu_ext_op_acct_tran_type	sv_bi_extract_extdoatt
EXTDOUOM	sa_authority (sabi_ouom.sql)	table_no	code	plant	bi_adiu_ext_op_uom	sv_bi_extract_extdouom
EXTDREPR	sa_authority (sabi_repair.sql)	table_no	code	plant	bi_adiu_ext_wotask_repair	sv_bi_extract_extdrepr
EXTDROOT	sa_authority (sabi_rootcause.sql)	table_no	code	plant	bi_adiu_ext_wotask_root_cause	sv_bi_extract_extdroot
EXTDOPEX	sa_rule_key (sabi_rule_key_oex.sql)	rule_id	key_name	plant	bi_adiu_ext_op_expense	sv_bi_extract_extdopex
EXTDSTTT	sa_authority (sabi_auth_stt.sql)	table_no	code	plant	bi_adiu_ext_storerm_trans_type	sv_bi_extract_extdsttt
EXTDSTRM	sa_storeroom_setup (sabi_strm_setup.sql)	storeroom	plant		bi_adiu_ext_inv_storeroom	sv_bi_extract_extdstrm
EXTFSTTR	sa_storeroom_log (sabi_strm_trans.sql)	transaction_id			bi_adiu_ext_storeroom_trans	sv_bi_extract_extfsttr
EXTDSITE	sa_catalog (sabi_catalog.sql)	stock_code	plant		bi_adiu_ext_stock_item	sv_bi_extract_extdsite
EXTDFAIL	sa_authority (sabi_failure.sql)	table_no	code	plant	bi_adiu_ext_wotask_fail	sv_bi_extract_extdfail
EXTFSTOR					bi_adiu_ext_inv_snapshot	sv_bi_extract_extfstor_inc
						sv_bi_extract_extfstor_ini