



## A day in the life of an ODS/EDW Administrator

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## Session Rules of Etiquette

- Please turn off your cell phone/pager
- If you must leave the session early, please do so as discreetly as possible. I'll try not take it personally.
- Please avoid side conversation during the session – I'm easily distracted.

**Thank you for your cooperation!**

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## Introduction

- This morning I will be going over some of the tasks involved with being an ODS/EDW administrator
- I hope that I can share at least one helpful tip to free up some of your time.

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## Agenda

- We'll look at some of the administration tasks for the ODS and EDW
- Automating the monitoring of streams and scheduled jobs
- Customizing the ODS
- Monitoring for poor performance
- Customizing and Validating the EDW
- Working with report writers

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## Background

- Kent State University is located in Kent, Ohio
- 40,000+ students
- 8 campus system
- Live on the ODS for 4 years, EDW for 2.5
- Currently on 8.3 both systems, using Oracle Streams

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Simplify Monitoring

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## Simplify Monitoring

- Found out about issues too late
- DBA's set up scripts to monitor streams thru Oracle grid
- Created a custom Oracle package for all my monitoring tasks.
- Created the necessary admin utility entries to run it - passes in a parameter

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## Simplify Monitoring cont.

Let's have a look:

Select a Process

Select a process to schedule.

[Schedule Banner ODS Mappings](#)

[KSU ODS Custom Jobs](#)

[Banner ODS Utilities](#)

[Schedule Banner EDW Snapshot Mappings](#)

Select a Subprocess

Select a subprocess to schedule.

[Custom KSU procedure](#)

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## Simplify Monitoring cont.

### Schedule a Process

To submit this subprocess to the job queue, fill in the information below, then click Submit.

\* - indicates a required field.

#### Process to Schedule

Custom KSU procedure

#### Process Parameters

PROCEDURE TO RUN\*

#### Scheduling Parameters

To schedule this job to run immediately, click [here](#) or type "NOW" into the Run Date

Run Date (dd-mon-yyyy):\*

[Select a Date](#)

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## Simplify Monitoring cont.

This process calls a custom Oracle package and passes in the name of the procedure to run.

```
CASE ltrim(rtrim(vstring))
when 'P_CHECK_VALIDATION' then agzproc.P_CHECK_VALIDATION;
when 'BROKEN_JOB_CHK' then agzproc.BROKEN_JOB_CHK;
when 'P_STREAMS_CHECK' then agzproc.P_STREAMS_CHECK;
when 'P_CHANGE_TABLE' then agzproc.P_CHANGE_TABLE;
when 'P_DELETE_CUSTPROC_RECS' then agzproc.P_DELETE_CUSTPROC_RECS;
when 'P_CUT_LOGS' then agzproc.P_CUT_LOGS;
when 'P_LOCK_ODSREADER' then agzproc.P_LOCK_ODSREADER;
when 'P_UNLOCK_ODSREADER' then agzproc.P_UNLOCK_ODSREADER;
when 'P_GATHER_HIER_STATS' then agzproc.P_GATHER_HIER_STATS;
when 'P_BUILD_BITMAPS_ALL' then agzproc.P_BUILD_BITMAPS_ALL;
when 'P_BUILD_BITMAPS_FINAID' then agzproc.P_BUILD_BITMAPS('VFT_FINANCIAL_AID_STUDENT');
when 'P_BUILD_BITMAPS_ENROLLMENT' then agzproc.P_BUILD_BITMAPS('VFT_ENROLLMENT');
when 'P_BUILD_BITMAPS_COURSE_REG' then agzproc.P_BUILD_BITMAPS('VFT_COURSE_REGISTRATION');
when 'P_BUILD_BITMAPS_RANDA' then agzproc.P_BUILD_BITMAPS('VFT_RECRUITING_AND_ADMISSION');
when 'P_BUILD_BITMAPS_HR' then agzproc.P_BUILD_BITMAPS('VFT_EMPLOYEE_POSITION');
when 'P_CHECK_RUNNING_JOBS' then agzproc.P_CHECK_RUNNING_JOBS;
ELSE null;
END CASE;
```

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## Simplify Monitoring cont.

- Why this approach?  
Simple to add a new monitoring task  
Each one can then be set up to run  
on demand or on a schedule

Let's have a look at one:

```
PROCEDURE P_DELETE_CUSTPROC_RECS IS
BEGIN
  delete ia_admin.adrlogd
  where adrlogd_process = 'KSU_CUST_PROC'
  and adrlogd_run_date < sysdate-14;
  commit;

  delete ia_admin.adblogh
  where adblogh_process = 'KSU_CUST_PROC'
  and adblogh_run_date < sysdate-14;
  commit;
END P_DELETE_CUSTPROC_RECS;
```

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## Simplify Monitoring cont.

- Some are set up to email and/or text out notifications:

```
IF v_rec_cnt > 0
THEN
  agkolib.P_WriteMsg('There are || v_rec_cnt || ' apply errors');
  IF v_system = 'OPROD'
  THEN
    p_adv_jobnotify ('donotreply@kent.edu', 'rbnva@kent.edu', 'There are ' ||
    p_adv_jobnotify ('donotreply@kent.edu', '3, 21@VTEXT.COM', 'There are
  ELSE
    p_adv_jobnotify ('donotreply@kent.edu', 'rbnva@kent.edu', 'There are ' ||
    p_adv_jobnotify ('donotreply@kent.edu', '1@VTEXT.COM', 'There are
  END IF;

  v_rec_cnt || ' apply errors', 'There are apply errors on production!');
  ' || v_rec_cnt || ' apply errors', 'There are apply errors on production!');

  v_rec_cnt || ' apply errors', 'There are apply errors on test!');
  ' || v_rec_cnt || ' apply errors', 'There are apply errors on test!');
```

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## Simplify Monitoring cont.

- The streams monitor procedure runs hourly
- The broken job procedure runs once a day
- The delete of the log records for this custom job runs once a day
- The job to check for running jobs runs every morning to give me a heads up if we are running late with the refresh
- And so on...

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Shorten your refresh  
and load times

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## Shorten your refresh and load times

- It's not necessary to single-thread everything.
- Load your machine with as much as it can handle without affecting performance
- Nightly we run 7 different refresh job streams all at the same time.
- The loads we kick off 9 at the same time.



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Performance



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## Performance

- If you have a reporting view that isn't performing well – materialize it.

### Banner ODS Utilities

[Report Source Change Table Counts](#)  
[Add Comments To Reporting Views](#)  
[Add Comments to a SINGLE Reporting View](#)  
[Banner ODS Checks and Balances](#)  
[Reconcile a Single Table](#)  
[Transfer Banner Fine-Grained Access](#)  
[Cleanup Reconcile Tables](#)  
[Reconcile a Group of Tables](#)  
[Reconcile Multiple Tables](#)  
[Create Materialized Views](#)  
[Maintain Materialized Views](#)

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## Performance – cont.

- Create the mat view first:

### Banner ODS Utilities

#### Create Materialized Views

Reporting Views\* (0/429)

ACADEMIC\_HISTORY\_EVENT  
ACADEMIC\_OUTCOME  
ACADEMIC\_OUTCOME\_SLOT  
ACADEMIC\_STUDY\_EXTENDED  
ACADEMIC\_STUDY\_ORIG  
ACADEMIC\_STUDY\_PLAY  
ACADEMIC\_STUDY\_PLAY2  
ACCOUNT\_ATTRIBUTES  
ACCOUNT\_HIERARCHY  
ACCOUNT\_HIERARCHY\_FISCAL

### Process to Schedule

#### Process Parameters

#### Scheduling Parameters

To schedule this job to run immediately, click [here](#) or type "NOW" into the Run Date

Run Date (dd-mon-yyyy):\*

Select a Date

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## Performance – cont.

- It should automatically refresh in your nightly refresh. See the following for more information:
- Defect 1-1AZFZBD Some materialized views not getting refreshed as part of the nightly refresh
- Defect 1-198DSF9 Refresh of Materialized view runs twice if there is a local record in wmt\_target
- FAQ 1-Q5C0JE Creating indices for Materialized views in ODS



## Performance – cont.

- If you find you have reports that aren't performing well you may need to add an index or create a new custom reporting view.
- Do an explain plan on the sql that is running for the report to determine if an index or new view would help



## Performance – cont.

- Use performance tools to monitor your system:
  - Oracle Grid
  - Toad monitor – not as good but much cheaper



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Customizing the ODS  
and EDW



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## Customizing the ODS

- When bringing over new data or new views to the ODS make sure you keep everything in a separate schema.
- When adding new indexes to existing tables name them with a custom value (ie. our custom indexes are <table>\_kinx99



## Customizing the ODS cont.

- Add your new views to the metadata
- It's a tedious process but it is well worth it
- If you are comfortable with sql you can make this process easier by inserting some of the data directly into the underlying tables.



# Customizing the ODS cont.

## Meta Data

### Banner Operational Data Store

View the published Banner ODS meta data.

### Banner Enterprise Data Warehouse

View the published Banner EDW meta data.

### Maintain Banner ODS Meta Data

Update/Edit/Publish the Banner ODS meta data.

### Maintain Banner EDW Meta Data

Update/Edit/Publish the Banner EDW meta data.

#### [ADMISSIONS ADDL INFO KSU](#)

Contains additional data specific to an application to study at the institution submitted by the person. Multiple academic years and or academic periods are available for comparison reporting.

One row per person per academic period per application number per requirement.

ACADEMIC\_PERIOD, PERSON\_UID, APPLICATION\_NUMBER, REQUIREMENT

#### [ADMISSIONS REQ SLOT KSU](#)

Uses data from the ADMISSIONS\_REQUIREMENT reporting view. Displays up to the first 15 sets of values for a person\_uid, academic\_period and application\_number sorted by requirement ascending.

One row per person per academic\_period per application number

PERSON\_UID, ACADEMIC\_PERIOD, APPLICATION\_NUMBER

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EDW cleansing and validation

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## Easier EDW cleansing

- Fine if there is a validation table
- Without a validation table:

### Update a Cleansing Rule

To update this Cleansing Rule, make changes to the information below, then click Save.

\* - indicates a required field.

**Rule Name: \***

**Rule Source Query: \***

**Prefix Column:**

**Range Rule?:** ☐

**Effective Date Rule?:** ☐

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## Easier EDW cleansing cont.

- We have several custom data items with hundreds of values and no validation table
- Created a table with those values:

|                         |  |      |            |                    |
|-------------------------|--|------|------------|--------------------|
| STUDENT_CLASS_LEVEL_BEG |  |      |            | 198780 SR Senior   |
| STUDENT_CLASS_LEVEL_BEG |  |      |            | 198780 UNS Unde... |
| STUDENT_CLASS_LEVEL_BEG |  |      |            | 198810 EDS Educ... |
| STUDENT_CLASS_LEVEL_BEG |  |      |            | 198810 FR Fresh... |
| TEST_SCORE_RANGE        |  | 0    | 4.9999     | 0 - 4.9999         |
| TEST_SCORE_RANGE        |  | 1601 | 99999.9999 | > 1600             |
| TEST_SCORE_RANGE        |  | 6    | 6.4999     | 6 - 6.4999         |
| TEST_SCORE_RANGE        |  | 7    | 7.4999     | 7 - 7.4999         |

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## Easier EDW cleansing cont.

- We use that table as a validation table:

### Update a Cleansing Rule

To update this Cleansing Rule, make changes to the information below, then click Save.

\* - indicates a required field.

|                             |  |
|-----------------------------|--|
| <b>Rule Name:</b> *         | STUDENT_CLASS_LEVEL_BEG_KSU  |
| <b>Rule Source Query:</b> * | SELECT DISTINCT 'STUDENT_CLASS_LEVEL_BEG_KSU' DATA_ELEMENT, NULL W_PREFIX,<br>WAREHOUSE_VALUE W_VALUE, LONG_DESC LONG_DESC, SHORT_DESC SHORT_DESC FROM<br>KSU_102.EDW_CUSTOM_CLEANSER WHERE DATA_ELEMENT = 'STUDENT_CLASS_LEVEL_BEG' |
| <b>Prefix Column:</b>       | -No Prefix For This Rule-  |

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EDW validation

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## EDW Validation

- Custom EDW data is hard to validate
- Data is spread out across so many tables
- Use the input, clean and error tables
  - All the data is in here
  - Can be exported to a flat file for import into Excel

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## Working with other areas

*Report writers, business and technical areas.*

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## Working with other areas

- Report Writers
  - Depending on tool used don't always understand the ramifications of what they do
  - Teach them to use the metadata
- Business Areas
  - Don't get too technical
- Technical personnel
  - Be nice to your DBA staff, you need them!

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## Summary

- Create automated monitoring
- Run more than one job at a time
- Materialize, create custom indices and views
- Add custom items to the metadata
- There is an easier way to cleanse and validate your EDW
- Maintain good relationships

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## Questions & Answers

- Any questions?

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Thank You!

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