COLLABORATE 17
TECHNOLOGY AND APPLICATIONS FORUM FOR THE ORACLE COMMUNITY

EBS Excel Upload Options

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About the Presenter

John Peters, JRPJR, Inc.

- Independent Consultant
- Techno/Functional focus
- Supply Chain Functional focus
- Over 24 years working with Oracle EBS
- Founding board member of the NorCal OAUG
- OAUG Workflow SIG Chairman
- OAUG APEX in EBS SIG Chairman
- Member of the Oracle ATG CAB
- I enjoy sharing what I know about the Oracle E-Business Suite, I have many prior presentations posted on my web site at: http://jrpjr.com

Why Excel

Why does data end up in Excel

- External systems
  - Data Conversions
  - Interfaces
- EBS Extract manipulate upload
  - Due to a functional gap in EBS
  - Due to an inefficiency in EBS
- Excel is an easy to use and flexible tool so it is natural for users to evolve business processes around it

Drawbacks to Excel

- Lacks auditability and integrity of data
- Excel is often the bane of IT and Audit professionals
- Goals should be to:
  - Try to keep business processes in a system which provides:
    - Authentication
    - Authorization
    - Auditability
    - Structure to maintain data integrity

Excel Will Exist in Business Processes

- Okay I am getting off my Soap Box
- Excel is not going away
- So we need to find better ways to use it and integrate it into EBS

Ways to Extract from EBS to Excel

- Folder Forms, save directly to Excel
- BI Publisher, save directly to Excel
- Discoverer, TOAD
- Monarch, parse structured report data to Excel
- Third Party Reporting/Extract Tools
- Oracle APEX, save directly to Excel

Manipulate Data in Excel

- Always make sure that:
  - Data is row structured
  - You include all columns in your sorts
  - Format data with leading zeros as text
  - Get the correct date format for later parsing

- These may seem obvious but they are common issues we all run into daily when dealing with Excel data

Methods to Import Data From Excel

Methods to Import Data

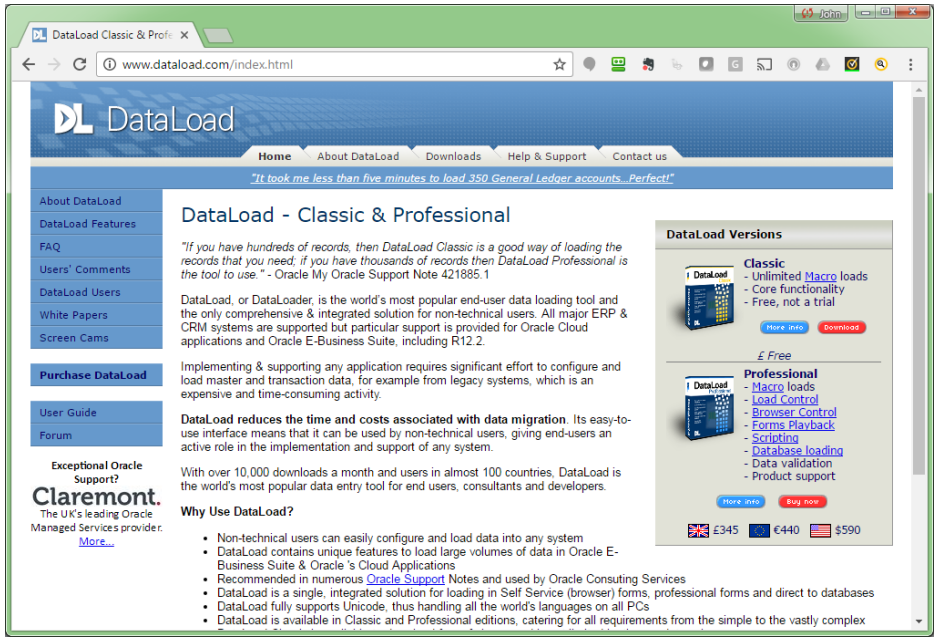
- We are going to now compare and contrast some methods for importing your Excel data back into Oracle EBS
  - DataLoader
  - SQL*Loader
  - DB External Tables
  - PL/SQL
  - Web ADI
  - Third Party Import Tools
  - APEX

DataLoader

DataLoader

- Cost: Classic (free) and Professional ($590)

- Where to get more information: http://www.dataload.com/



DataLoader – How it Works

- It is essentially formatting a stream of keystrokes that are sent into the EBS window
- Spreadsheet like interface to help structure navigation and control keystrokes along with data

DataLoader – Benefits

- Users can easily identify with how it works
- Uses same forms validations as manual entry
- Good for small number of very repetitive sets of records in a single EBS forms region
- Can load into EBS Forms and Self-Service (HTML) pages (Professional version only)

DataLoader – Drawbacks

- Not robust, just stream of keystrokes with fixed delays/pauses (Professional version has a Load Control feature)
- If system hangs, network communication delay, keystroke stream and system can get out of sync
- Keystrokes go into wrong field or just pile up in a field with an LOV that does not line up
- Multi page or region forms are tough to get to work
- Ties up a PC, can't change window focus
- Only runs in Windows OS
- Other PC application Pop-ups interfere with load because the steal the focus of the Windows UI

Oracle SQL*Loader

Oracle SQL*Loader

- Cost: Free
- Where to get more information:
  http://oracle.com
  http://support.oracle.com

- Many other web sites that provide good details

SQL*Loader – How it Works

- Requires an Oracle Home and SQL*Net
- Must have a DB User/Pwd
- Requires the data file to be loaded to be computer with the Oracle Home and SQL*Net
  - Desktop PC
  - DB or APPS Tier Server
- Reads the files and parses, either delimited or fixed space
- Transfers data directly into the database
- Reads text files, not native Excel, so you must save as a delimited file
- Control file identifies how to perform the load and mappings
- Log file records processing details
- Bad file holds records with formatting errors or that cause Oracle errors
- Discards file holds records not satisfying a WHEN clause

SQL*Loader – Benefit

- SQL*Loader has been around as long as the database
- Lots of reference information available on the internet
- Once you get it working it is reliable
- Lots of details to help with debugging
- Can handle parent child relationships in data

SQL*Loader – Drawbacks

- Many ways to parse a file and declare the parsing in the control file
- Tough to get working
- Does not handle line feeds in data fields well
- Does not always interpret quoting logic the same as Excel delimited files
- Access to servers is required or client install
- Many files to manage/review to ensure success
- Log files hard to parse in an automated manner
- Does not read native Excel files
- Many steps to process data
  - Save delimited file
  - Transfer file to computer where SQL*Loader is available
  - Run SQL*Loader
  - Review log file
- Still need to call Oracle API's or load interface tables
- Often different code set from forms validation

DB External Tables

DB External Tables

- Cost: Free
- Where to get more information:
  http://oracle.com
  http://support.oracle.com

- This is a variant of SQL*Loader

DB External Tables – How it Works

- Place a delimited or structured file on the DB Tier
- Create Table statement uses ORGANIZATION EXTERNAL clause to describe parsing and file location
- Files must be located in a filesystem that has been defined in the DB using the CREATE DIRECTORY statement
- Does not truly load the data into the DB, when accessed the data is reparsed each time
- Since it is a DB object it can be accessed by multiple sessions at the same time

DB External Tables – Benefits

- You can plug a text file into the DB and read it live like any other table
- Less steps than SQL*Loader

DB External Tables – Drawbacks

- You have to be on the DB tier, with file permissions that allow the DB to read the file
- You need DBA access to completely setup
- Very tough to debug you need DBA access
- Since it is read and parsed live, the current data in the file is what you see, with SQL*Loader you typically are loading into a staging table iteratively
- Same parsing limitations as SQL*Loader
- Does not read native Excel files
- Still need to call Oracle API's or load interface tables
- Often different code set from forms validation

PL/SQL

PL/SQL

- Cost: Free
- Where to get more information:
  http://oracle.com
  http://support.oracle.com

- You would typically do this if you don't like the parsing provided by SQL*Loader or DB External Tables

PL/SQL – How it Works

- You can use the DB Utilities in UTL_FILE
- File must be saved as delimited or fixed column text
- File must be transferred to the DB Tier
- Must first use CREATE DIRECTORY to identify where on the DB Tier the file will reside
- You then use UTL_FILE.GET_LINE to read a line
- Parsing the line into columns is your responsibility

PL/SQL – Benefits

- Complete parsing control

PL/SQL – Drawbacks

- You have to save the Excel file in a delimited format
- You have to upload the file to the DB Tier server
- Requires development

WebADI

WebADI (Web Applications Desktop Integrator)

- Cost: Free
- Where to get more information:
  http://oracle.com
  http://support.oracle.com

- http://jrpjr.com/
  Custom SubLedger Accounting JE WebADI I/F
  Custom Web ADI Integrators

- OAUG has a WebADI SIG
- Many other web sites that provide good details

WebADI – How it Works

- Data in Excel file is extracted and uploaded to the APPS Tier server, no text parsing
- Bi-directional communication between the APPS Tier server and client PC
- WebADI Excel spreadsheet is downloaded from the APPS Tier to the client PC
  - This includes the WebADI code, extracted data and connection details to reupload data
- You must set the appropriate macro security settings in Microsoft Excel for Web ADI Integrator to work with Microsoft Excel
- You can use Oracle EBS's seeded integrators or create your own custom ones
- Meta data associated with Web ADI Integrators is stored in the EBS instance

WebADI – Benefits

- Many seeded by Oracle already, you just have to download, put your data in, then upload
- You can now develop custom Web ADI integrators
- Don’t need to save delimited file and reparse
- Don’t need to have APPS or DB Tier access
- Don’t need a DB user/pwd, authentication and authorization handled within EBS
- Immediate feedback of errors
- Updates the status of the load, easy to interpret

WebADI – Drawbacks

- Authentication and instance details embedded in Excel file, you can't use them on different instances
- Two Excel file solution, you often have the data in another spreadsheet file and you need to cut/paste into Web ADI file
- Custom Web ADI integrators are a challenge to build, documentation and terminology is cryptic
- Still need to call Oracle API's or load interface tables
- Often different code set from forms validation

Third Party Tools

Third Party Tools

- More4Apps
  - End User Wizards -
  - Application Interface Wizard – for developers to create integrators
- GlobalSoftware
- Toad and SQL*Developer

- There are many more

More4Apps

- WebADI Replacement
- https://more4apps.com/
- End User Wizards
  - Prebuilt Loaders for Excel
  - Well over 30 transaction specific wizards like: Suppliers, AP Invoices, Items, BOMs, Routings, etc
  - No development required, license, install and deploy
  - Becomes an application module in EBS
- Application Interface Wizard
  - For developers to create integrators
  - Improved metadata entry and maintenance over WebADI

GlobalSoftware

- WebADI Replacement
- https://www.globalsoftwareinc.com/
- Spreadsheet Writeback for Oracle

More4Apps, GlobalSoftware - Benefits

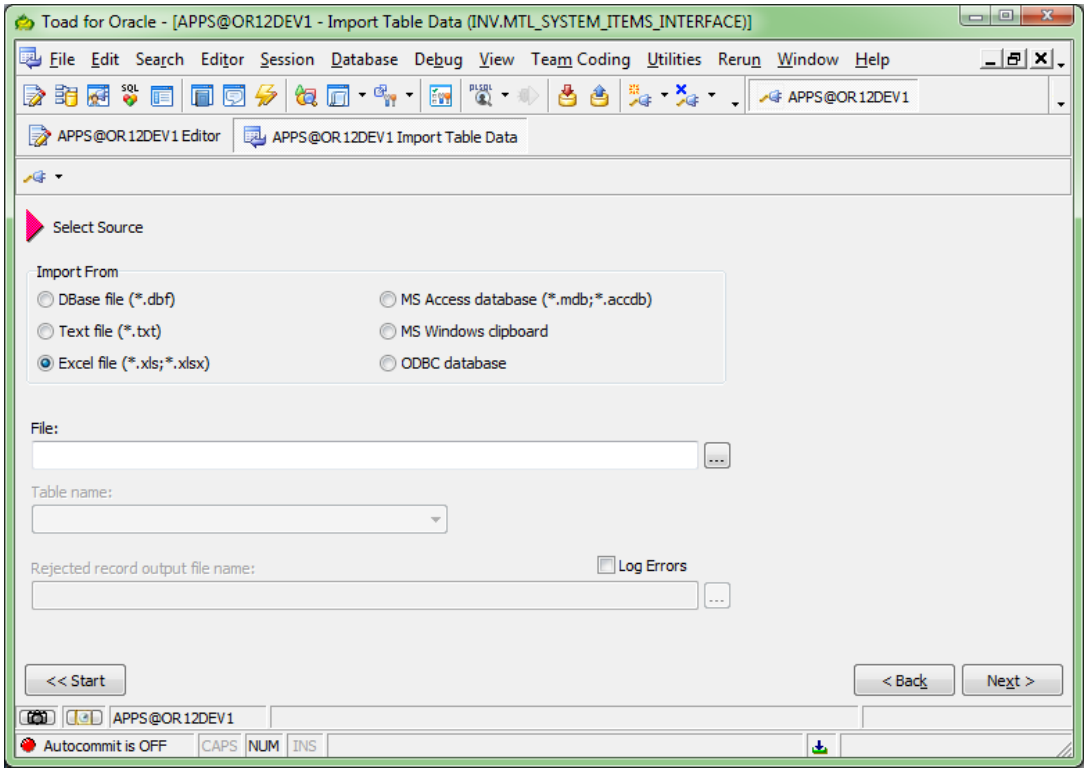
- Supported Tools
- No development when using provided integrators
- Easier to use than Custom Web ADI

More4Apps, GlobalSoftware - Drawbacks

- License expense
- Proprietary tool, limited community experience

TOAD

- TOAD has the ability to read native Excel files into a database table
- SQL*Developer has a similar functionality
- Requires Development
- Need TOAD License
- Need SQL*Net connectivity
- Need DB user / password
- Database :
  Import :
  Import Table Data



TOAD - Benefits

- Reads native Excel files
- If you are already doing development it is a quick and easy way to get data into a database table

TOAD - Drawbacks

- Only meant for developers to use
- Not an end user tool

Oracle APEX

Oracle APEX (Applications Express)

- Cost: Free
- Where to get more information:
  https://apex.oracle.com/
  http://support.oracle.com

- http://www.jrpjr.com/
  Migrate your Discover Reports to Oracle APEX
  Collaborative SIG - APEX Reporting
  Extend EBS Using Applications Express

- OAUG has a new APEX in EBS SIG
- Many other web sites that provide good details

Oracle APEX – General Information

- APEX is a web based rapid development tool
- Applications can be for Reporting and Data Entry
- Write once and deploy on any platform: Destkop, Tablet, Phone
- Always requires a live connection to an Oracle DB
- You can integrate an APEX application page into EBS using EBS form functions
- Can access EBS Authentication, Authorization and Navigation

Oracle APEX – How it Works

- Client device runs the APEX application in a browser
- APEX uses the ORDS (Oracle Rest Data Services) server
- ORDS provides an Excel parsing feature
- It can read a native Excel file with many worksheets and load the data into an Oracle Collection
- Uses the ORDS function XLS2COLLECTION, this parses the XLSX file into columns and populates the collection APEX_COLLECTIONS

Oracle APEX – Additional Details

- Oracle ORDS defaults.xml file entries
  - apex.excel2collection
  - apex.excel2collection.name
  - apex.excel2collection.onecollection
  - Apex.excel2collection.useSheetName
- Put a button in your APEX application with a Button Request Value of XLS2COLLECTION
- In your PL/SQL you loop through the table APEX_COLLECTIONS
- Read from APEX_COLLECTIONS where each Excel column is held in column c002 to c050
- Column c001 holds the worksheet name

Oracle APEX - DEMO

DEMO

Oracle APEX – Benefits

- Super simple way to upload a native Excel file from the users computer to the database
- Ability to handle multi-worksheet files
- First row contains the column names so your mapping can be automated or dynamic

Oracle APEX – Drawbacks

- You have to have APEX up and running
- You need to be familiar with development in APEX
- This is a development based solution
- Collection is limited to 50 columns, 1 is used for the worksheet name, so 49 columns of data
- I have not found a way to get the filename that was uploaded

One of Many Ways in APEX

- On Mon 4/3, Sylvain Martin with Insum presented the paper: 'When Oracle Web Applications Desktop Integrator meet Application Express'
- In that example he used the:
  - Dropzone APEX Plugin by Daniel Hochleitner
    This loads the raw XLSX file into a BLOB
  - as_read_xlsx PL/SQL Library by Anton Scheffer
    This parses the BLOB into a row of data for every cell
- This is more flexible since you are not limited by the number of columns
- This also allows you access values and formula columns
- You preserved the raw XLSX file in a BLOB column so you can always extract it again if someone wants to see the source file

Summary and Review

- We have reviewed a variety of ways to upload Excel data into the database and ultimately your EBS Applications
- Each method has some pro's and con's
- Some require development
- Some require software licenses
- The goal of this presentation was to make you aware of these various methods so you can evaluate them for your future use

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Q&A

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