MIS 5208 – L5 ACL: Working with Expressions

Audit Command Language Fundamentals

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Working with Expressions

- Expressions are statements used primarily to create filters and computed fields.
- They perform:
  - Calculations,
  - Specify logical conditions,
  - Create values that do not exist in the data file.
- Expressions can be:
  - Named and saved as part of a project or else created just for immediate use.
- The output of an expression can be returned in any of the four data types: logical, character, numeric, and datetime.

ACL for Windows

- **Profile and Help** - View or update your user profile, sign out of ACL Launchpad, or view online Help.
- **Organization selector** - Switch between accounts (organizations) you have access to using this drop-down list.
- **Recent Analytics Files** - Open recently accessed *ACL* projects or analysis apps.
- **Sample Files** - Open pre-built *ACL* projects that include a variety of sample data.
- **Open** - Open an existing *ACL* project, analysis app, or GRC project.
- **Create -** Create a new Analytic Project or Workflow in Results Manager for organizing, tracking, and remediation of exceptions.
- **Community** - Ask questions, share product ideas, contact support and access templates, content, training and other resources as part of your ACL subscription.

Interface and Basic Navigation

1. Main menu
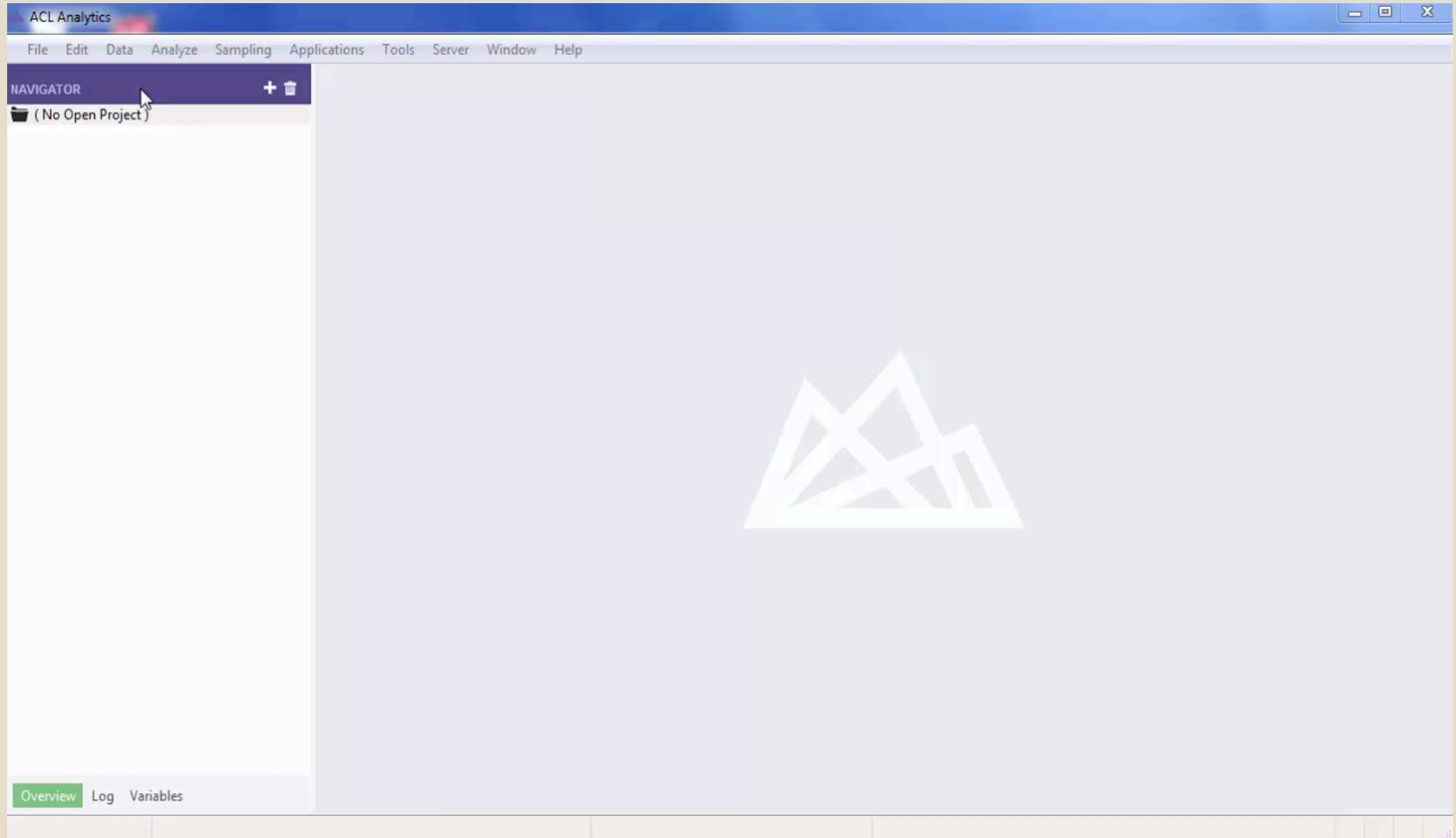2. Navigator
3. Status bar
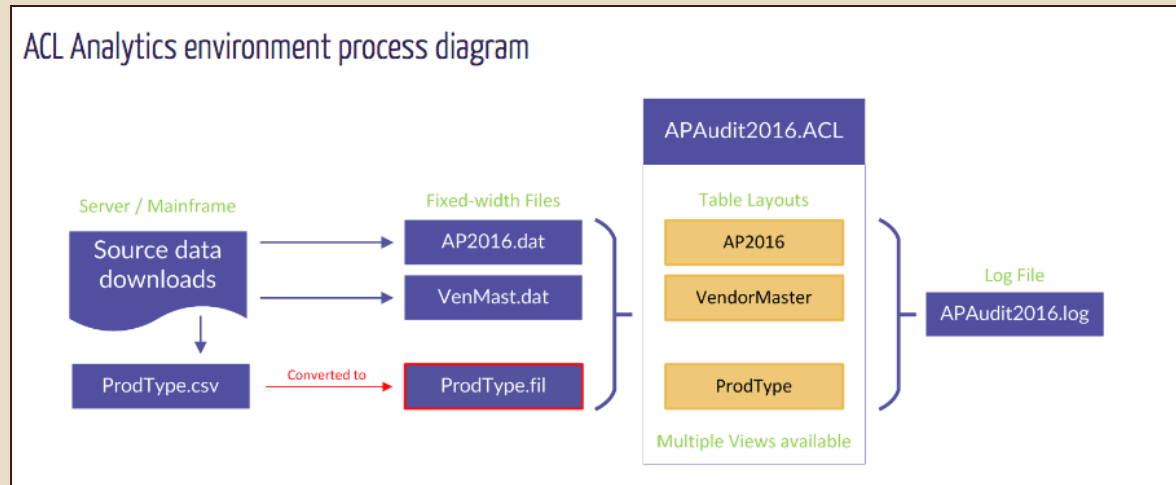4. Command line
5. Filter text box
6. View area
7. View tabs

ACL Interface and Basic Navigation

ACL Analytics Envionment

ACL Analytics environment process diagram

- Project
  - The project is similar to a file folder within a filing cabinet; supporting documentation items for each audit are filed in separate, clearly named folders.
  - For each new analysis or audit, a new project should be created to contain the relevant documentation.
  - Projects are files with .acl extensions and are named by the user when they are first created.
  - There are several item types within the project: table layouts, Views, the log, folders, and scripts.
  - To create a new project select File > New > Project.

ACL Analytics Envionment

ACL Analytics environment process diagram
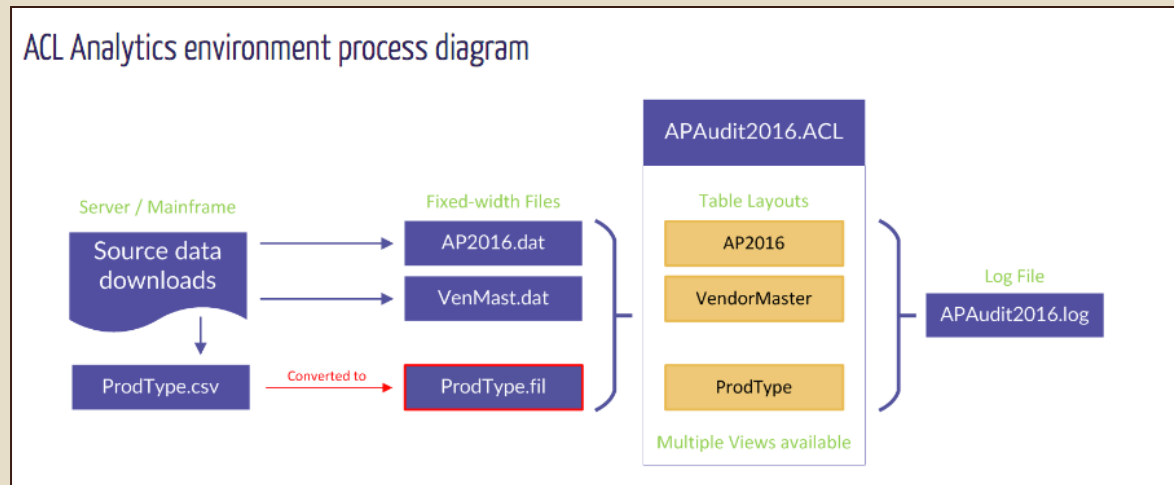
- Table layout
  - When an ACL Analytics project is first created, it is empty; this is because the source file(s) are stored outside of the project. Creating a table layout links the source file to the project.
  - In the ACL Analytics Environment Process Diagram, the source data file (AP2016.dat) is linked to the project via the table layout AP2016. Table layouts contain various information.
    - Data path to the location of the source data file
    - Field names, start positions, lengths, types, number of decimal places and datetime formats
    - Named expressions (calculated fields and named filters)
    - View definitions

ACL Analytics Envionment

ACL Analytics environment process diagram
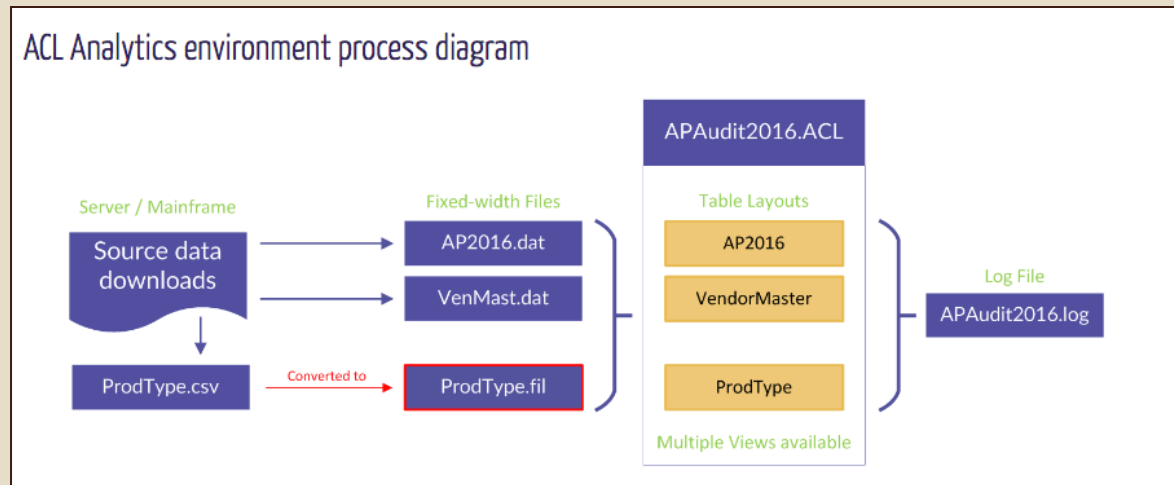
- View
  - A View determines how data is displayed on the screen within ACL Analytics.
 - Whenever a table layout is created, a View (named Default_View) is automatically generated that contains all of the fields in the table at the time of creation.
  - If you only want to work with certain fields, you can create a new View that has the desired fields. A table layout can have multiple Views.
  - Changing a View does not affect the underlying table layout or other Views.
  - If a table layout was created with 20 fields, the Default View for that table would also contain 20 fields. Additional Views could contain any of those 20 fields.
  - Views can be accessed from the tabs across the bottom of the ACL Analytics screen. In The ACL Analytics Environment process diagram, the table layout, ProductType, has a Default View and two additional Views.

ACL Analytics Envionment

ACL Analytics environment process diagram
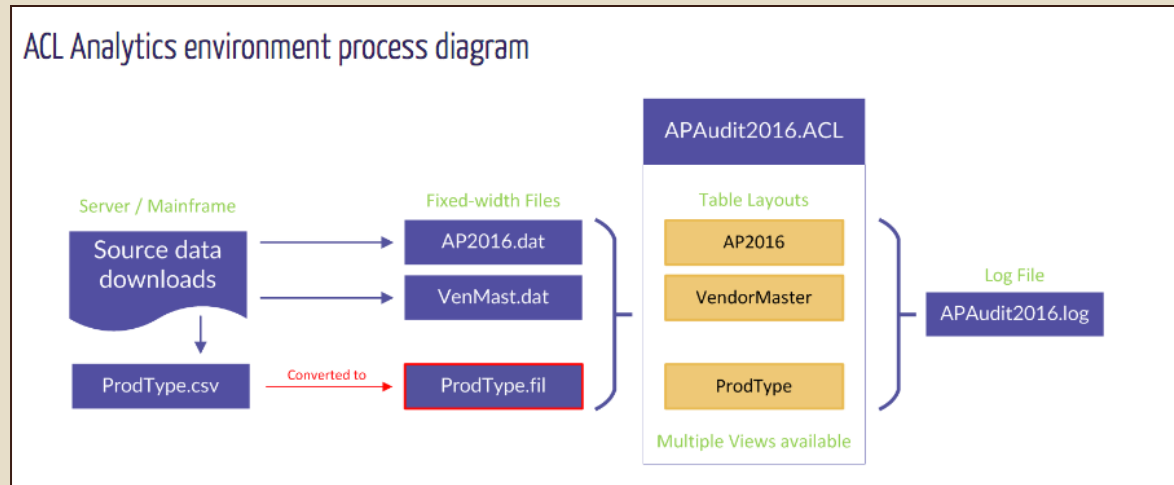
- Log file
  - A log file records most analysis steps and results. When a project is first created, a log file is automatically created and linked to it.
  - The log file has the same name as the project that it is linked to, but with a .log extension. In the ACL Analytics Environment process diagram (previous page), the log is named APAudit2016.log.
  - Consider the process of totaling a numeric field (running the TOTAL command on it).
  - The result of the Total command can't be written to the source file because ACL Analytics is a read only application.
  - Instead, the result of the Total is written to the log file. All log results include a date and time stamp along with the name of the table on which the result was produced.
  - Results can be seen at the time that the result was created and they can be retrieved later.

ACL Commands

ACL Analytics commands are pre-defined routines and are organized into three menu bar choices: Data, Analyze, and Sampling.

Menu Bar Choice	Intended Purpose	Example	
Data	Manipulate (combine or reorder) data.	Join	Combine two tables.
		Sort	Reorder the sequence of data.
Analyze	Understand (test) data.	Duplicates	Identify any duplicates.
		Classify	Calculate subtotals by category.
Sampling	Create and evaluate sample pools.	Sample	Select a sample of records from a specific population.

ACL Commands

Logs

- About the log
  - The log provides a chronological record of work performed on a project. The log automatically records every step taken in a project.
  - This provides an audit trail of the analysis, and allows users to retrace and/or re-create the steps taken to produce their results, print a report, or create a script to repeat the analysis process.
  - Each analysis step is written to the log as an entry, with log entries organized into log sessions.
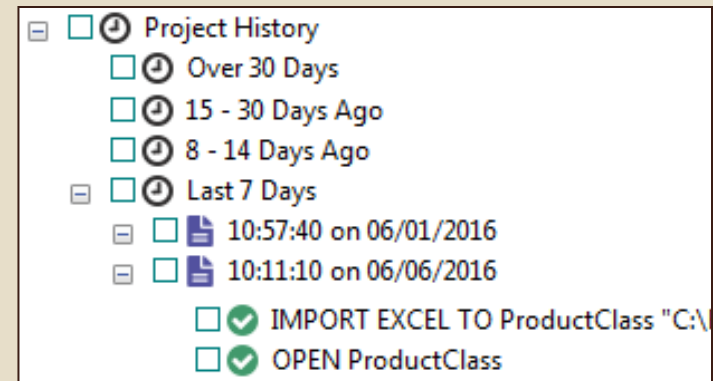
The Log

Basic ACL Analytics Environment
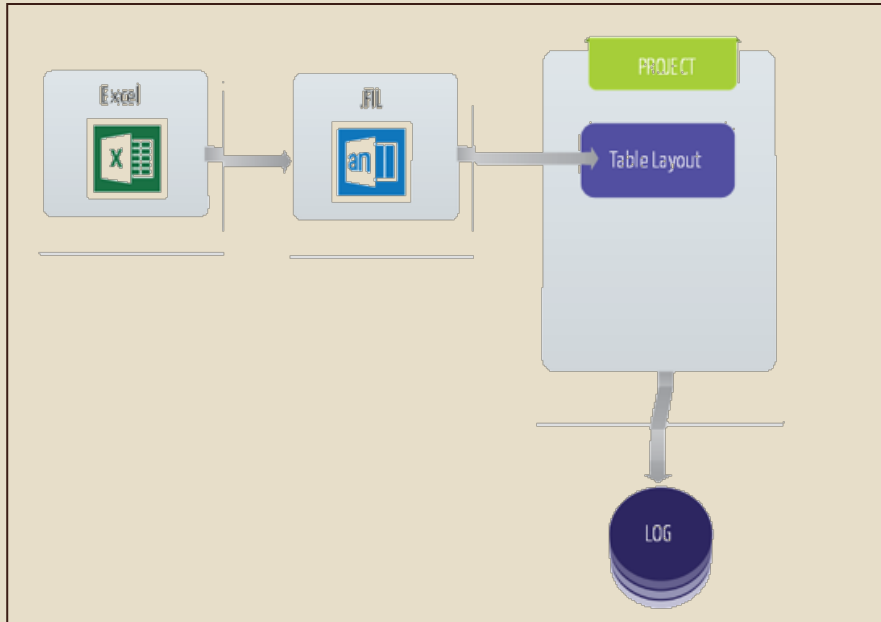
- Source files, such as an Excel file reside outside of the ACL project.

- Corresponding .FIL files are created for each source file. .FIL files also reside outside of the ACL project and are referenced by the table layout. In a way, the table layout acts as a window to the .FIL file.

- You can view the log in the Navigator of your project.

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Sub Files

- When a new table is created as the result of running a command a .fil sub file is created.

- In the image to the right, the source file AR 2016.dat is 129 KB and contains Accounts Receivable data for all of 2016.

- If we use the Extract command to create a new table, AR_Q1_2016, that contains only the AR data from the first quarter, a sub file, AR_Q1_2016.fil is created. Since AR_Q1_2016 is a subset of the AR_2016 file, it makes sense that it is only 32 KB.

- AR_2016 contains data for the full year, but analysis is to be performed on Q1 data.

Sub Files

APAudit2016.ACL

AR 2016.dat — 129 KB — AR_2016

AR Q1 2016.fil — 32 KB — AR_Q1_2016
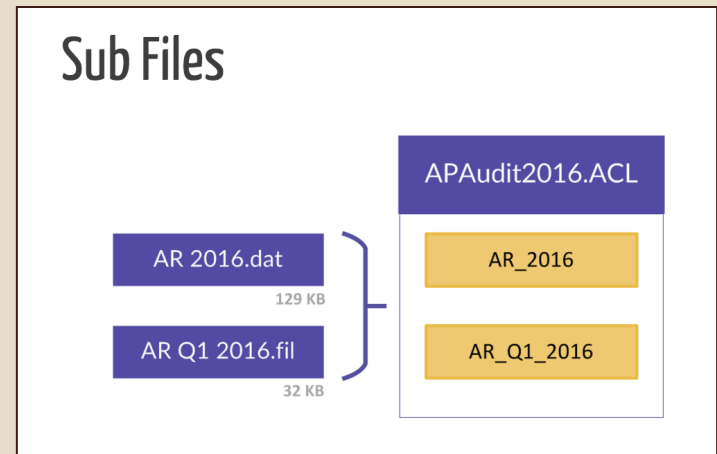
- Use the Extract command to create a sub-file containing Q1 data.

- Subsequent analysis will be faster on the smaller, sub-file.

- ACL Analytics commands that create new tables always create new sub-files with .FIL extensions.

Data Analysis Cycle

1. Plan
- Plan your work prior to starting the project
- Formulate clear objectives
- Develop a concise strategy
- Budget resources effectively
- Consider outcomes and what the final report will include

2. Import
- Import Data Outlined in Plan
- Locate specific data files and identify specific files
- Acquire and create table layouts for source files

3. Prepare
- Prepare your data analysis
- Understand data quality of source files
- Identify incorrect date ranges
- Incorrect totals
- Missing transactions
- Etc

4. Analyze
- Analyze the prepared data
- Consider data integrity issues
- Many objectives could take many steps – proving your hypothesis

5. Report
- Understand the audience
- Will the report be admitted to legal proceedings – considered as evidence?

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Best Practices

- Organized, Organize, Organize
  - Use folders and subfolders to organize your work

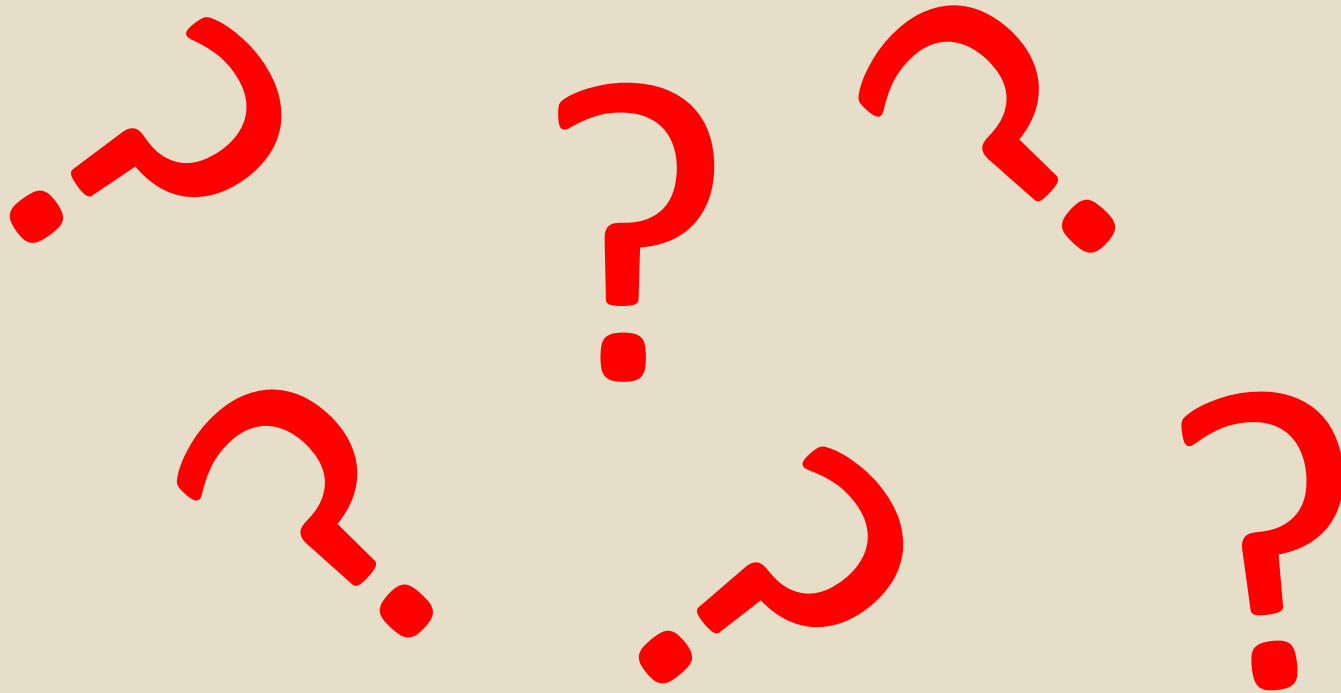|	ACL Data	Local Disk (C:)		
	AR 2016 North America		Payroll 2016 All Regions	
ACL Project	AR 2016 North America.ACL ACL Project 9KB		Payroll 2016 All Regions.ACL ACL Project 12KB	ACL Project
Text Document	AR 2016 North America.LOG Text Document 45KB		Payroll 2016 All Regions.LOG Text Document 5KB	Log File
Source Data	AR 2016.dat DAT File 129KB		Empmast.dat DAT File 129KB	Source Data
Sub File	AR Q1 2016.fil DAT File 32KB		Payroll.dat DAT File 135KB	Source Data

  - Use well-defined naming conventions
    - Useful when searching for items
    - Helps in the interpretation of your work
    - Use Descriptive names (e.g. file B is not a good name unless there is a data map)

Data Map with Data File Sources Noted
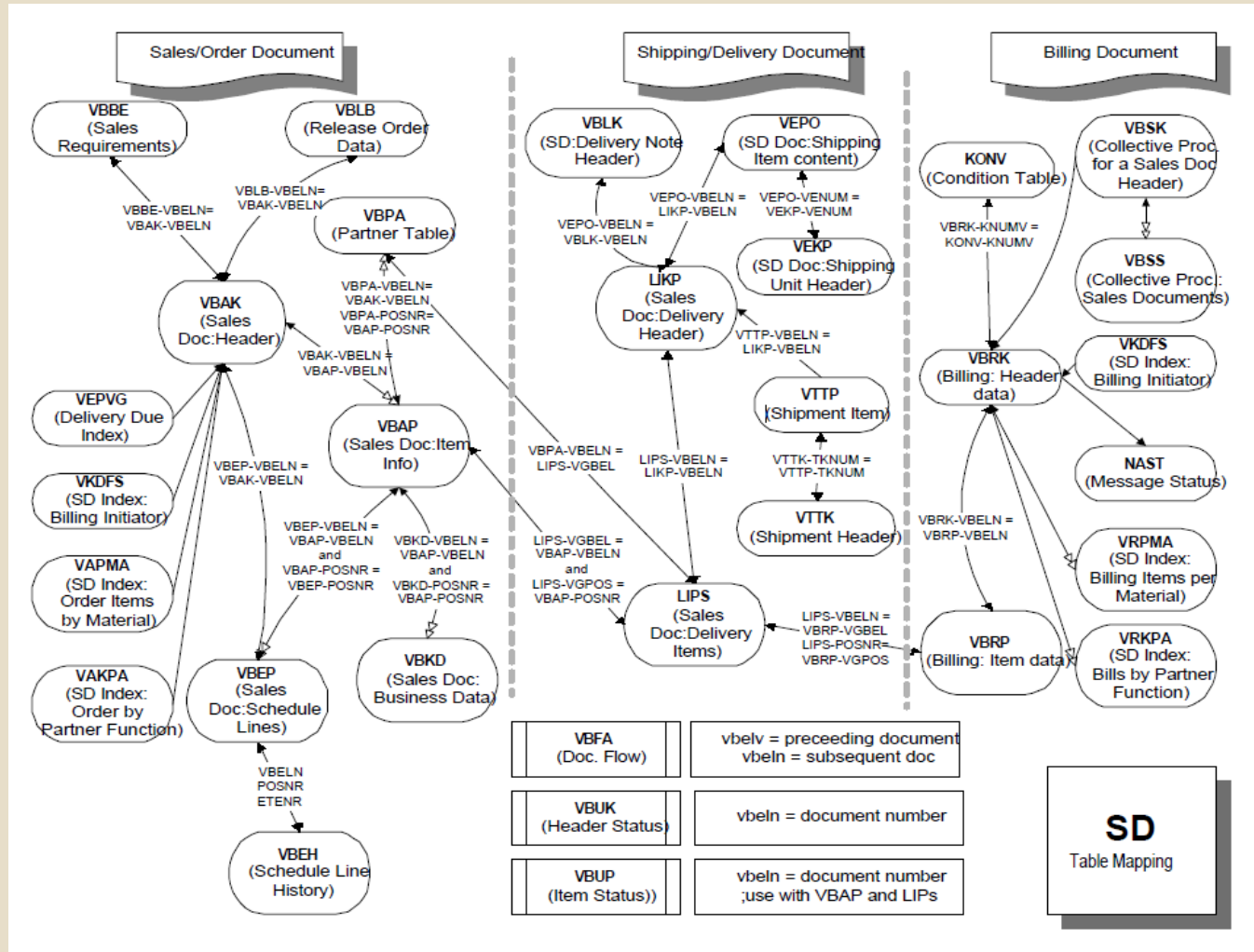
Source: Ernst & Young

Questions

Thank you.