MIS 5208

Lab 04b: ACL: Key Ideas - Working With Data

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Agenda

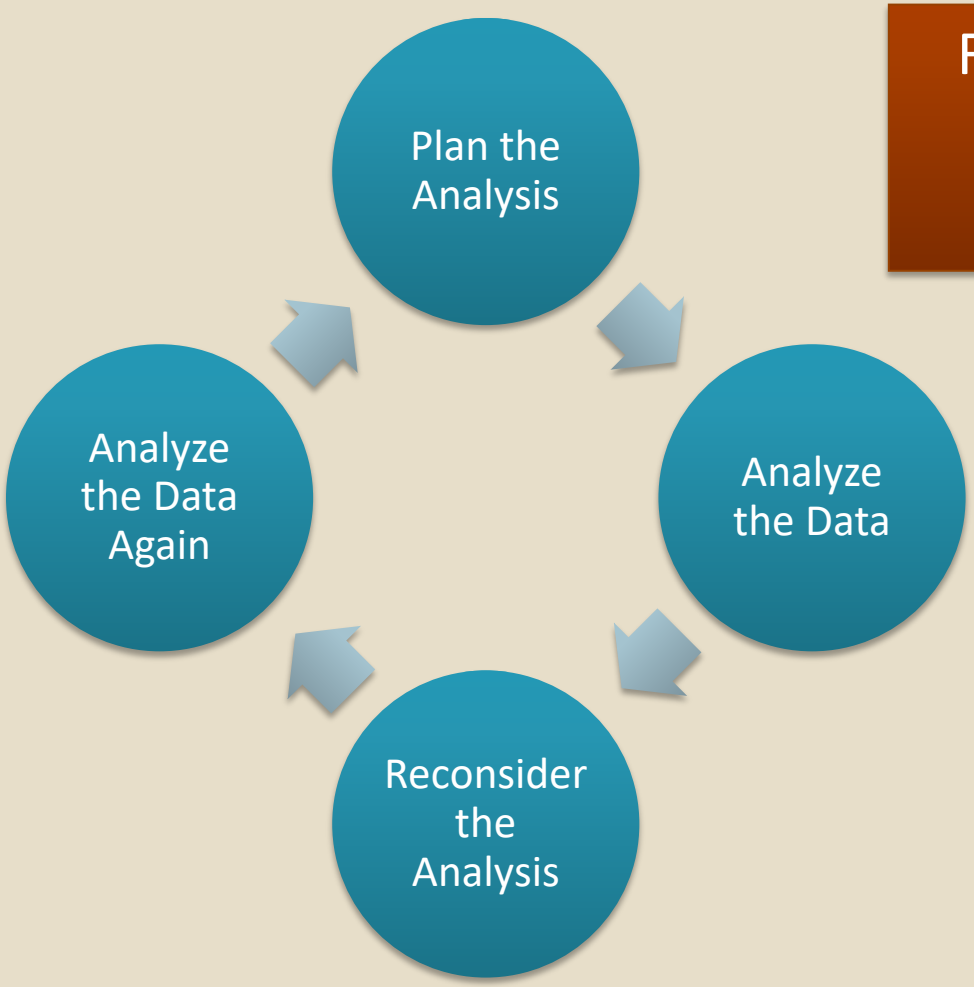
- What is ACL Used For
- Basic ACL
- Acquiring Data
- Verifying Data Integrity
- Analyzing Data
- Reporting Your Findings

What is ACL Used For? ACL Features

- ACL can analyze large data sets. The tool provides secure access to information from a variety of sources.
  - Unlimited file size
  - Analyze millions of records

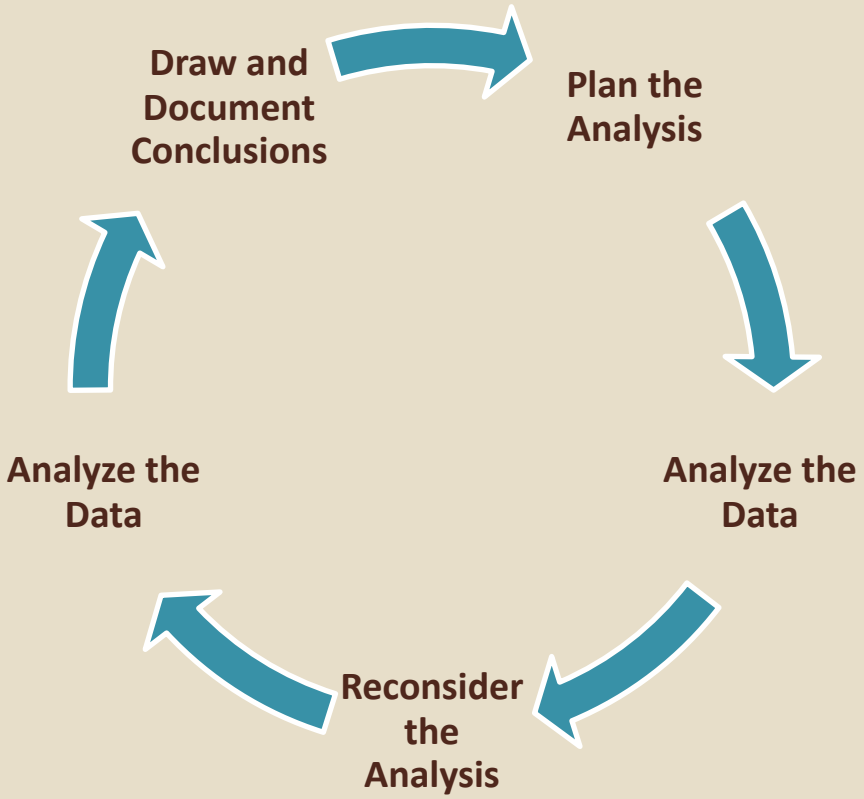
Fraud Analysis Planning

Analysis Planning



Fraud investigations should answer at least six (6) questions

Fraud Analysis Process



- What data currently exists?
- What format is the data?
- Who entered the data?
- Who maintains the data?
- Which department owns the data?
- Is the data accurate and properly formatted? (If not can it be modified to make it suitable?)
- Can you combine the data from more than one source?
- Can you derive the data from data you already have?

Fraud Investigations Answer 6 Questions

- Who
  - The number of resources required but also the type of resources including external forensic auditors or fraud investigators will be used and what role they will play.
- What
  - Plans should list specific objectives and symptoms of fraud – as well as the systems of interest.
- When
  - Investigations are often unplanned – plans should include investigation priority.
- Where
  - Plans should include descriptions of data sources, security and access control issues.
- Why
  - A clear statement of the fraud risk or allegations referencing applicable laws and regulations as well as the reason for conducting the investigation and the anticipated results.
- How
  - Plans should include the type of data analysis – e.g. completeness and integrity, cross-tabulation, duplicates, data profiles, ratio and Benford analysis

Source: Coderre, David (2009-03-17). Computer Aided Fraud Prevention and Detection: A Step by Step Guide. Wiley. Kindle Edition.

Fraud Investigation Plan Example

- Allegation
  - Pat Currie, a new receiving clerk, reported that the received quantity is not being compared to the order quantity before the items are accepted and the invoice paid.
  - While she has been on the job for only three months, she has noticed that the discrepancy tends to occur more often when Tom Fremont is the officer and the vendor is Steel Cases Limited.
  - Corporate contracting policy has a clear statement (Section J, para. 42) that prohibits the payment if the order quantity, receipt quantity, and invoiced quantity do not agree.
- Objective
  - The audit will review contracts to determine if proper procedures are in place and being followed to ensure that the receipt equals the order quantity.
  - All contracts where there are differences will be examined, specifically to determine if there are problems related to quantities ordered and received with contracts raised by Tom Fremont or with Steel Cases Limited.
- Audit Team
  - Terry Persson will be the team leader.
  - Sam Bedford (financial auditor) and Jackie Wilson (contract specialist) will be the other full-time members of the team.
  - Dave Dorland will provide CAATTs support and will interface with the systems people to obtain the necessary data.

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Fraud Investigation Plan

- Schedule
  - All team members will cease other projects effective immediately to concentrate on the investigation, with the exception of Jackie Wilson, who will join the team in two weeks.
  - An interim report will be presented to the audit committee on July 8 and a final report should be prepared for signature by audit committee chairman on July 22.
- Analysis
  - The contracting database will be backed up to tape and the receipt data to CD-ROM. Information from the contracting database will be extracted (continued) for the last 12 months and compared, by contract and product number, to the receipt database.
  - The audit team will determine the total amount received by contract and by product number, and compare this to the total quantity ordered, by contract and by product number.
  - Further analysis will determine the vendors with the highest variances (by number of items; by number of products; and by value of the variance [unit price × quantity]) and the contracting officer with the highest variances (items, products, and dollars). Note: Partial shipments may be a possible reason for receipt quantity being less than order quantity.
- Legal Authority
  - The legal department has been apprised of the allegation.
  - If the analysis indicates that there is a systemic issue and points to one or more contracting officers and/or vendors, audit will immediately notify Ms. K. Lindsay of the legal department.

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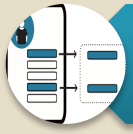
Fraud Detection Categories

Completeness & Integrity

Cross-Tabulation

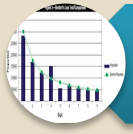
Duplicates

Gaps



Data Profiles

Ratio Analysis



Benford Analysis

Completeness & Integrity

- When extracting and receiving data:
  - The existence of control totals is an important step in ensuring the completeness.
  - Auditors must verify that all of the extracted records have been successfully transferred, and are accessible to and have been properly interpreted by, data analysis software.
  - Auditors should have only the desired records:
    - Tests can be used to ensure that auditors have only the required records, and no extras; these tests include:
      - Filters
      - Recalculating the data
      - Gap Checking
      - Statistical analysis on key numeric fields,
      - Duplicate record checking for duplicate records,
      - Sorting data on key fields
    - Each of these tests, while useful in ensuring the integrity and completeness of the data, also can identify potential fraudulent activity.

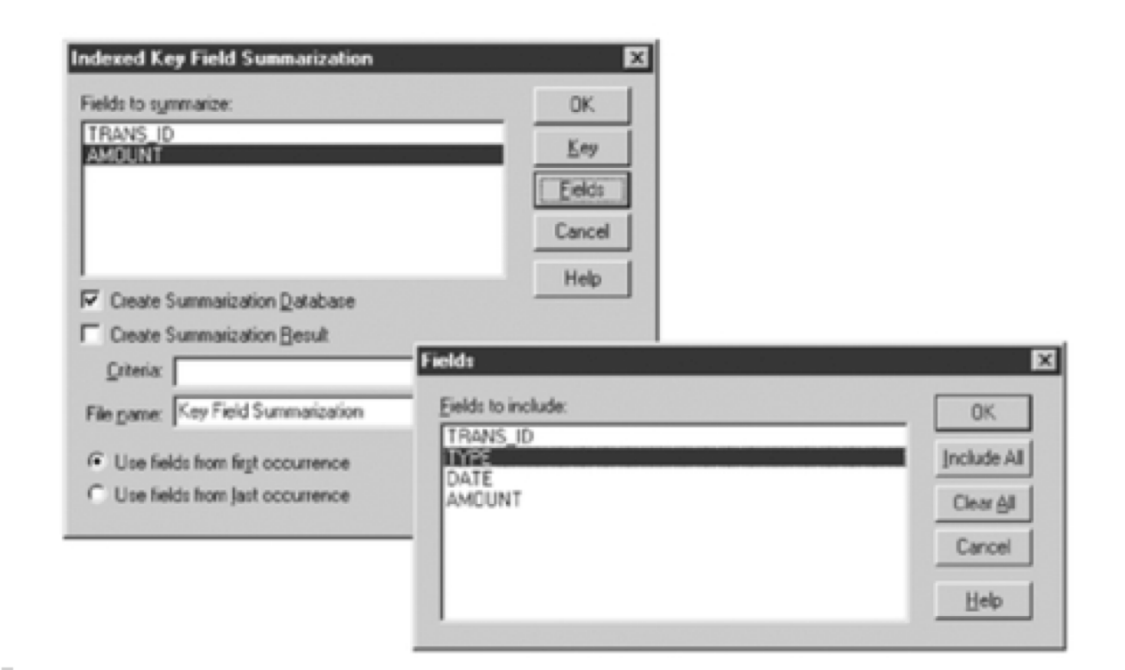
Chain of Custody – Access Methods

- To maintain chain of custody, you must preserve evidence from the time it is collected to the time it is presented in court. To prove the chain of custody, and ultimately show that the evidence has remained intact, prosecutors generally need service providers who can testify—That the evidence offered in court is the same evidence they collected or received.
- To the time and date the evidence was received or transferred to another provider. That there was no tampering with the item while it was in custody.
- The collection process is the crux of any investigation, and the most important step in any collection is documentation.
- Proper documentation and the ability to validate the findings are essential when a matter goes to trial, especially when the duration of a case lasts for months or years.
- Evidence that was located during the beginning of a case may become critical later on. If the chain of custody and evidence was properly documented, it will be easier to locate the necessary information.
- Additionally, evidence must be authenticated before it can be deemed admissible in court. To authenticate your evidence you must be able to prove your collection process was sound and void of tampering.
- The most effective way to do this is to maintain a documented chain of custody.

Forensically Sound

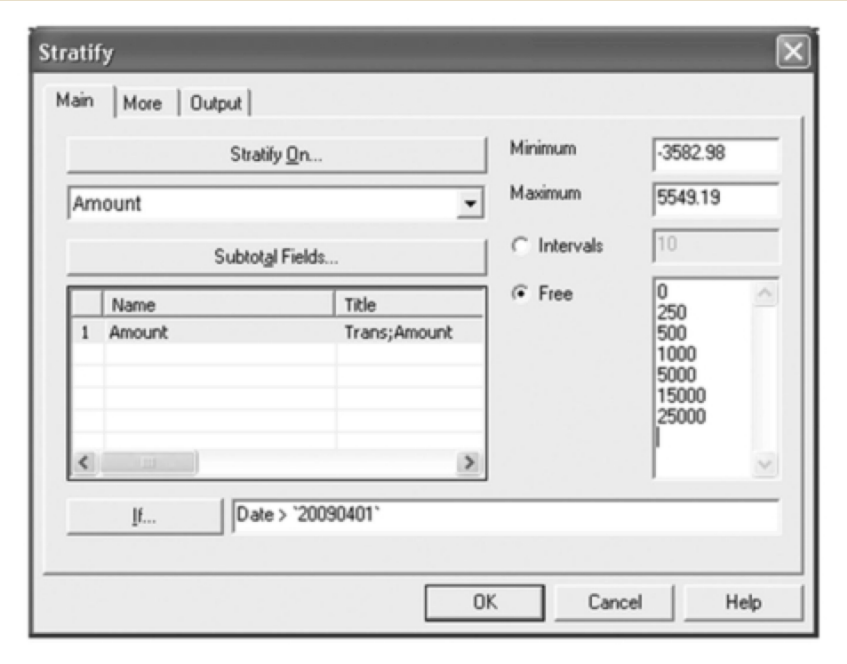
Data Summarization

- Summarizing transactions provides:
  - An overview of the data
  - A better understanding of the information system and conduct more informed analyses.



Data Stratification

- Stratification allows for the logical grouping of data based on specific range values for the data.

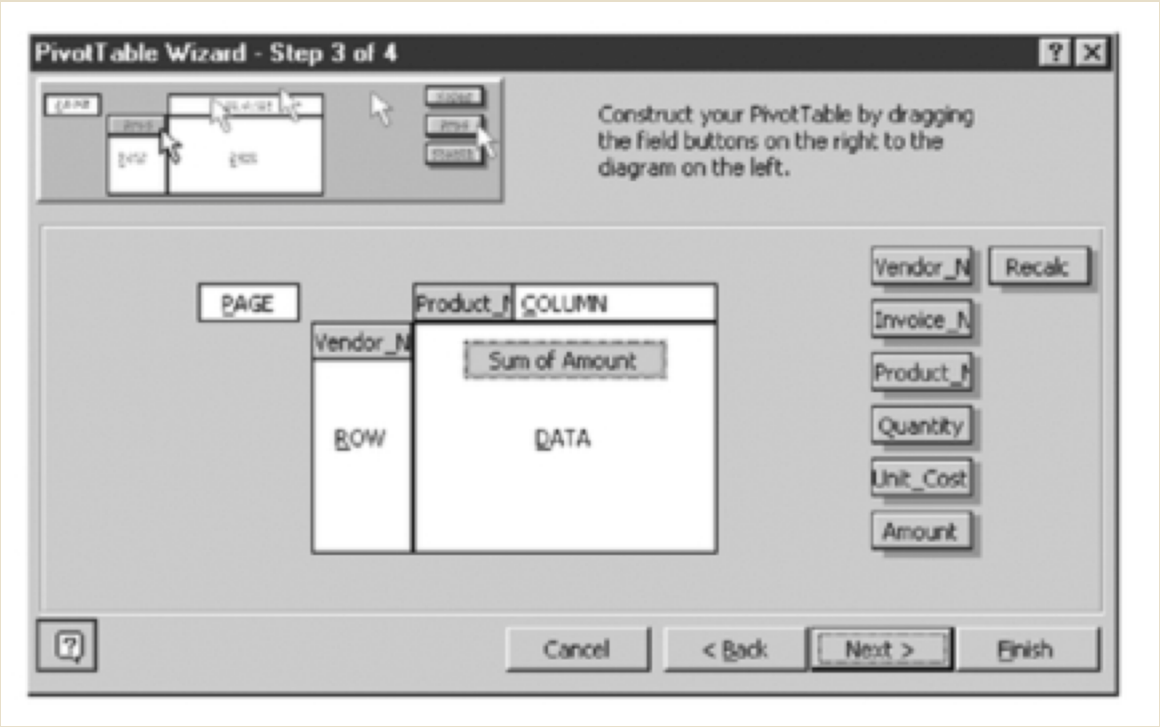


Why and how would this be useful?

- Like statistical analysis, a stratification of a numeric field will give a high-level view of the data.
- Stratifying data will show how many records fall into ranges, or strata, of the selected numeric field.

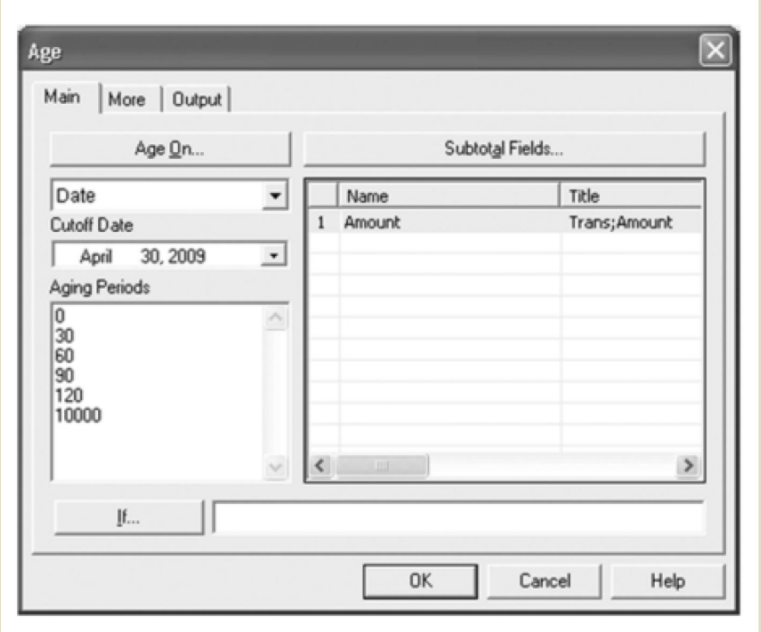
Cross Tabulation and Pivot Tables

- Making sense of data often means finding the best way to look at it.
- Cross tabulation, or pivot tables, is a method of structuring the records to make it easier for auditors to view the data.
- Data is often more understandable when presented in a table format.
- The basic principle involves taking a series of records and creating a two-dimensional table or array.



Aging Data

- Aging data calculates the number of days between two dates, and can provide auditors with valuable information in a variety of settings, such as when the timing of key events is critical to their validity and appropriateness.
- By aging data, one can calculate or highlight various items for further investigation, including:
  - Overdue accounts receivable or accounts payable
  - Favorable credit terms
  - Inventory turnover rates
  - Dormant accounts
  - Records with future,
  - Blank, or otherwise invalid dates
  - Items past a cutoff dates
  - Contracts awarded before contract closing date
  - Bids accepted after the bid closing date
  - Transactions outside of the billing period
  - Mean time to failure for equipment
  - Length in days of various activities

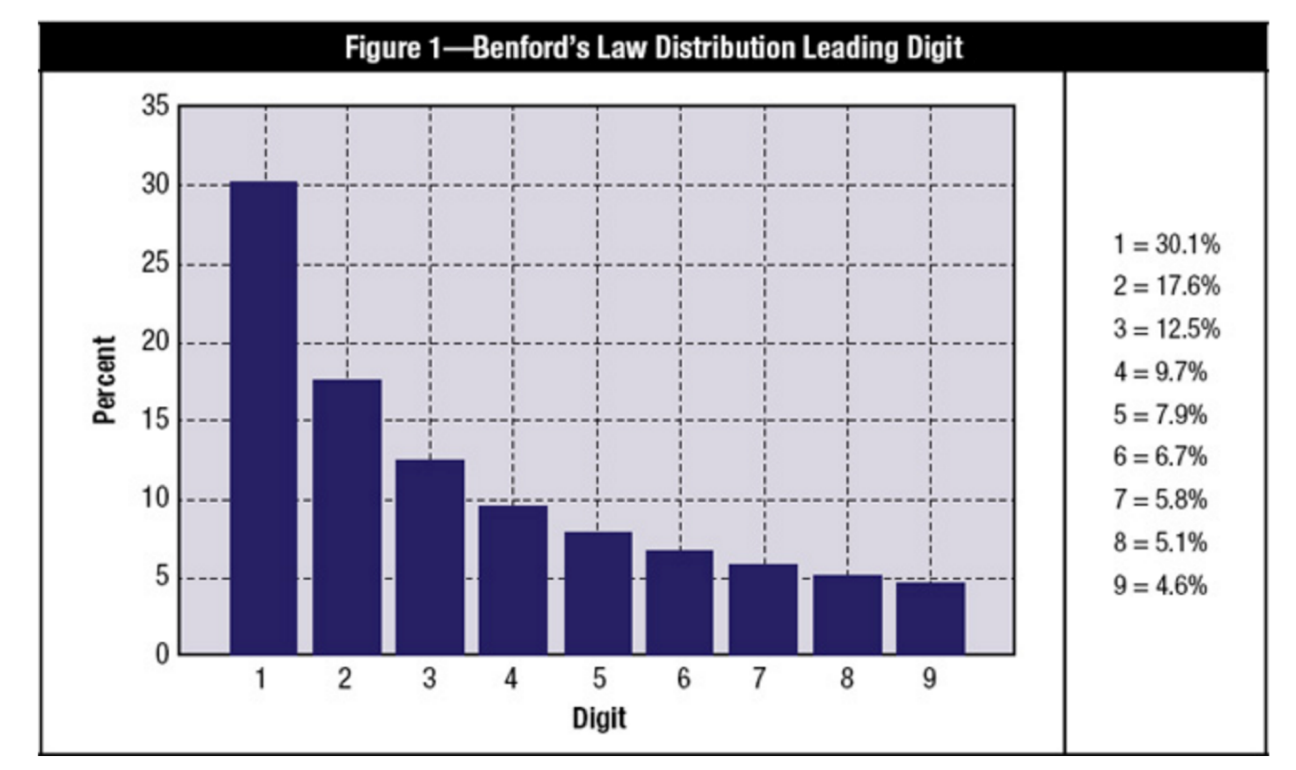


Ratio Analysis

- Ratios are easy to understand and simple to compute.
- Auditors use financial rations to compare different values to determine if they seem reasonable:
  - Rental Car – 5 days rental - $10,000
  - Rental Car – 1 day rental – 2000 miles – mileage charge
  - Hotel Stay – 5 Days – $22,000
- Ratios are just a raw computation and must be looked at from a “common sense” perspective.

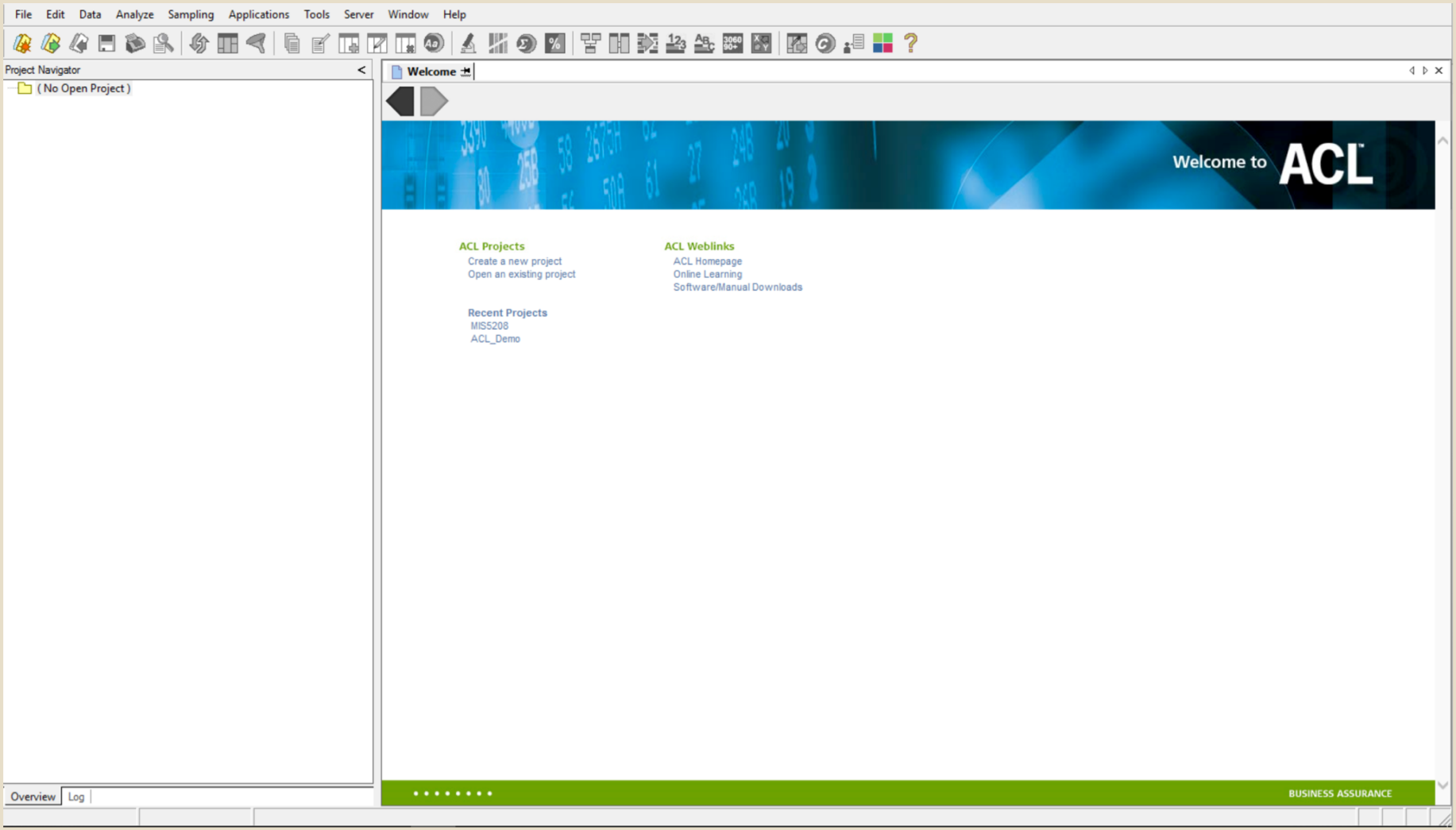
Benford's Law

- Benford's Law (which was first mentioned in 1881 by the astronomer Simon Newcomb) states that if we randomly select a number from a table of physical constants or statistical data, the probability that the first digit will be a "1" is about 0.301, rather than 0.1 as we might expect if all digits were equally likely.

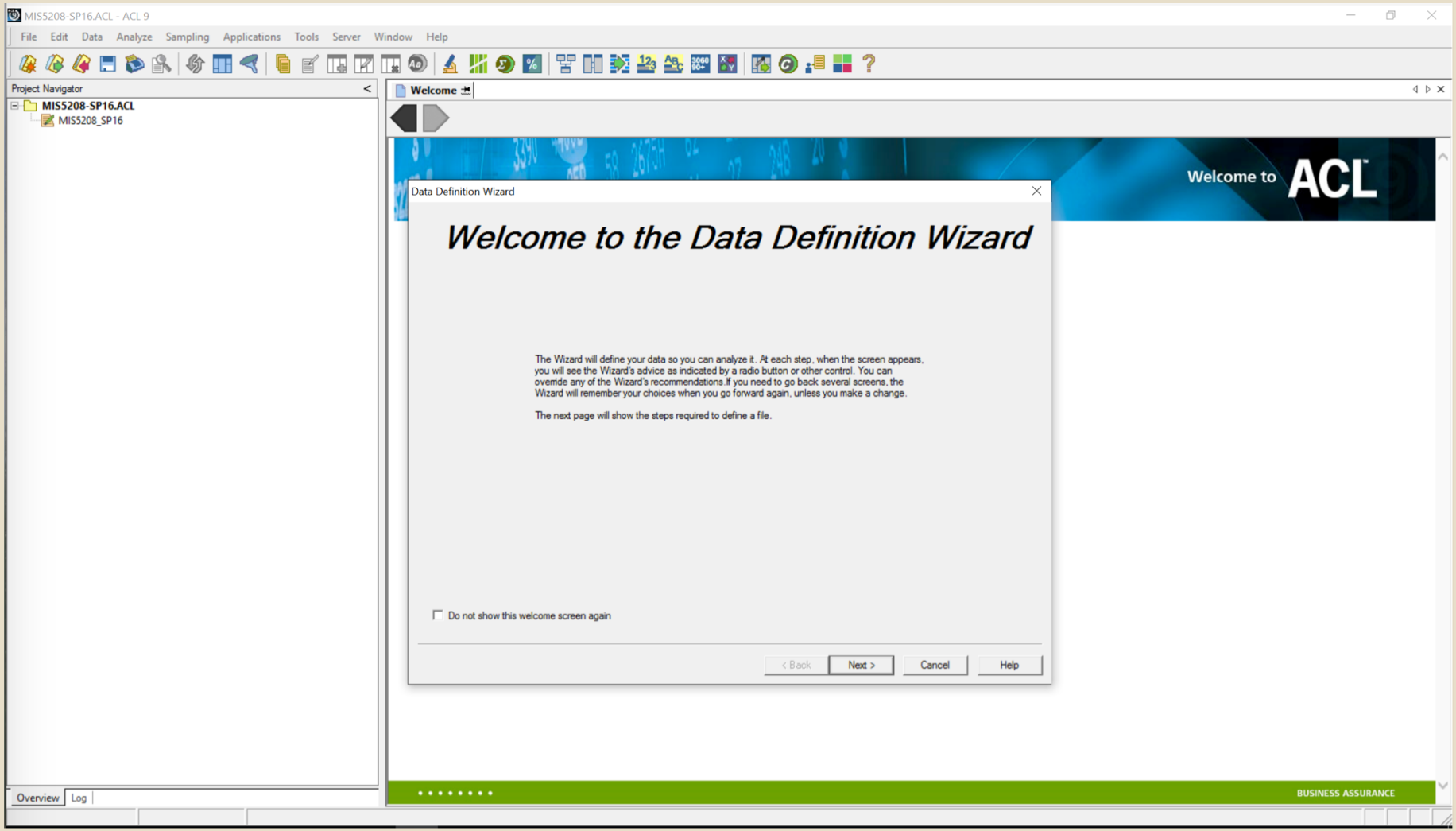


ACL Demo

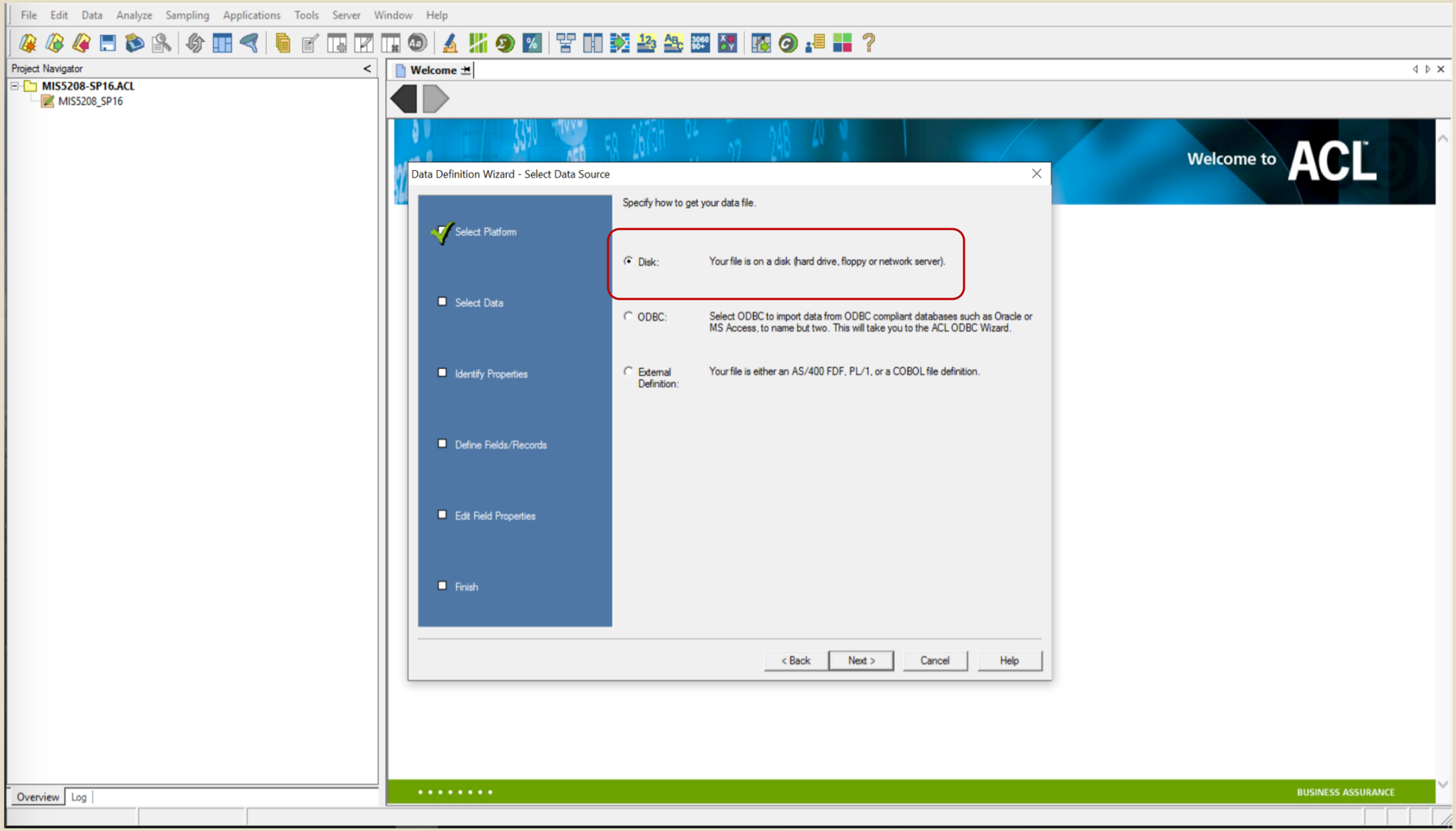
ACL Home Screen



Create a New Project



Acquiring Data - The Data Definition Wizard



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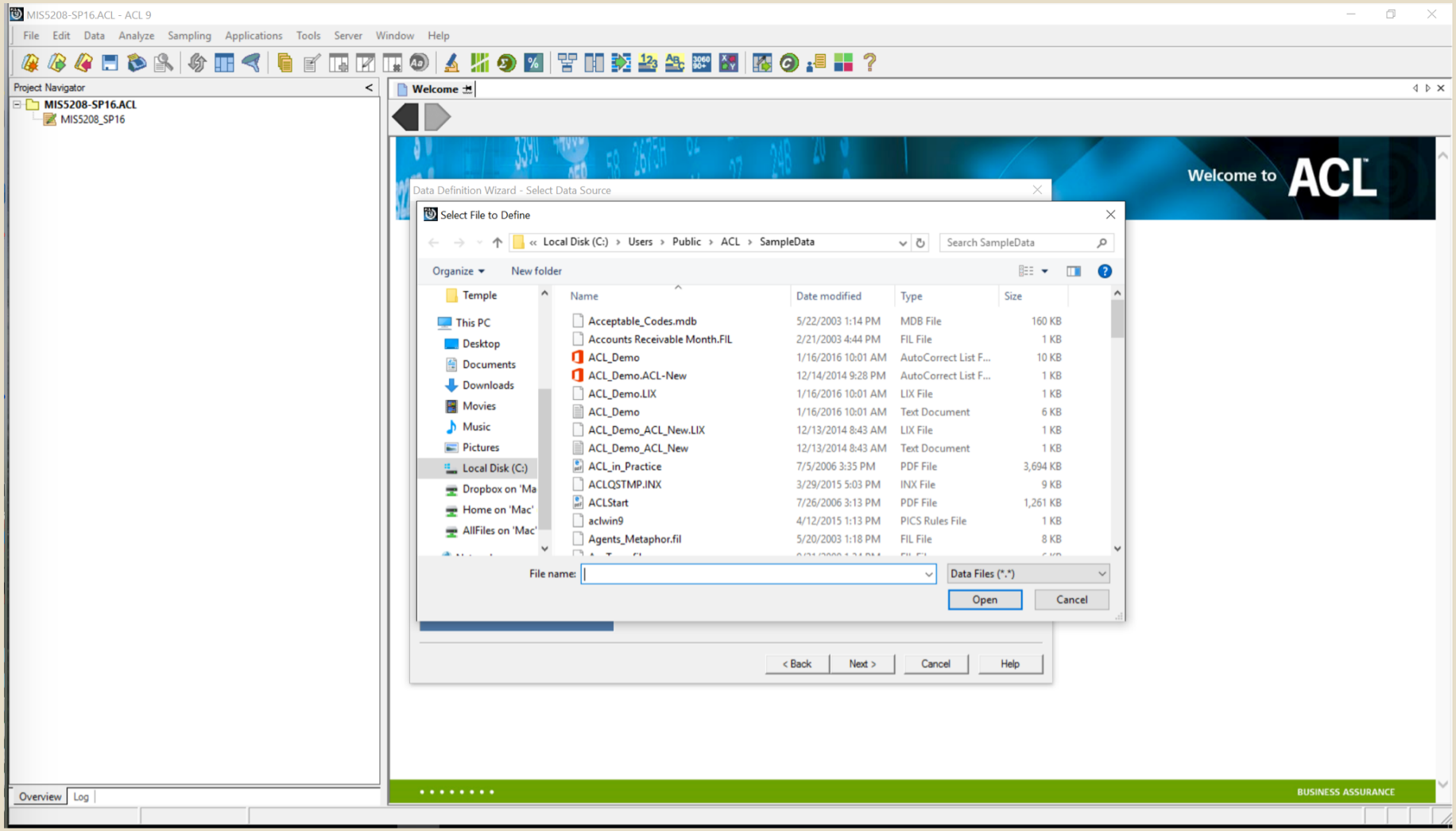
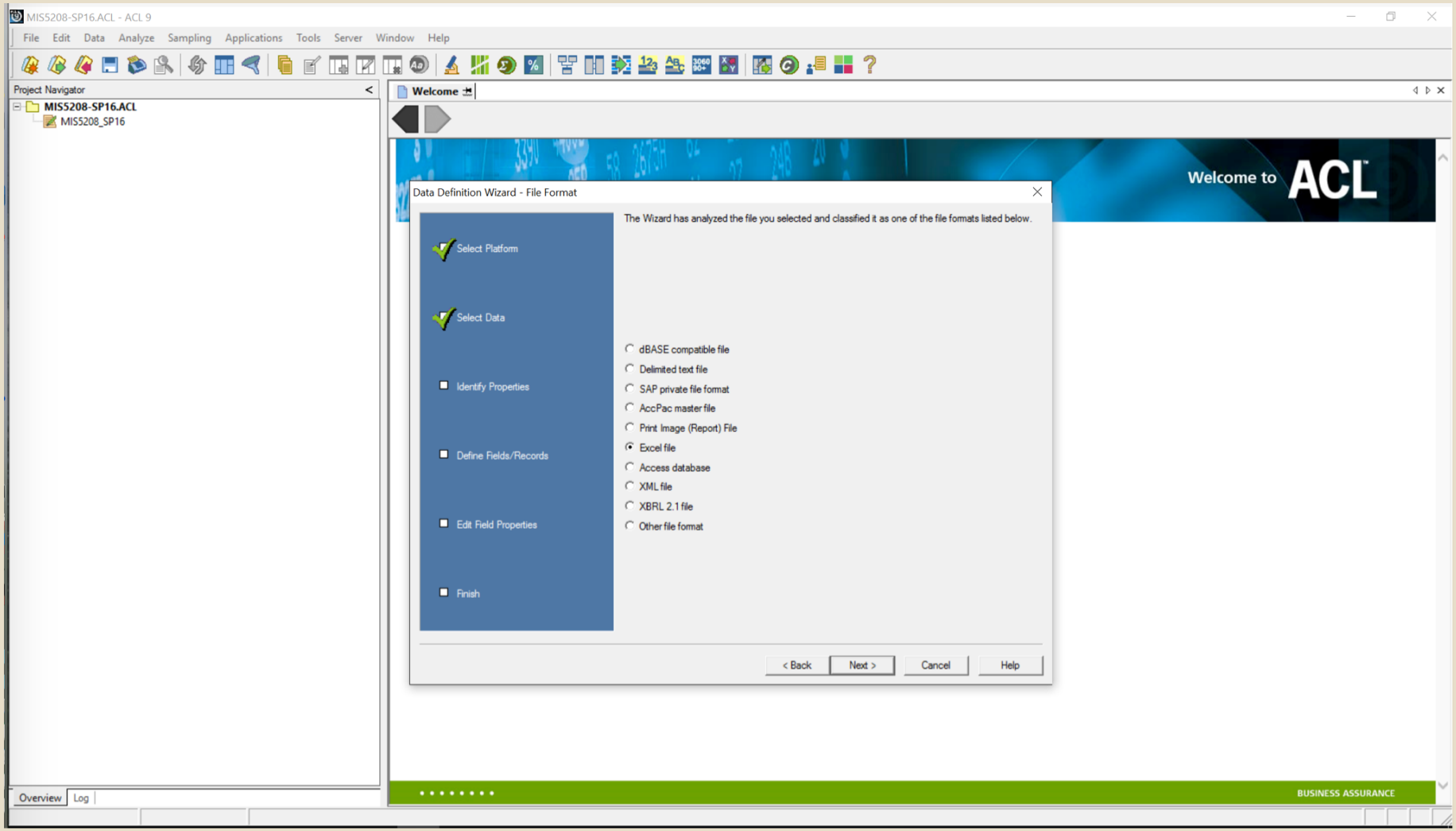
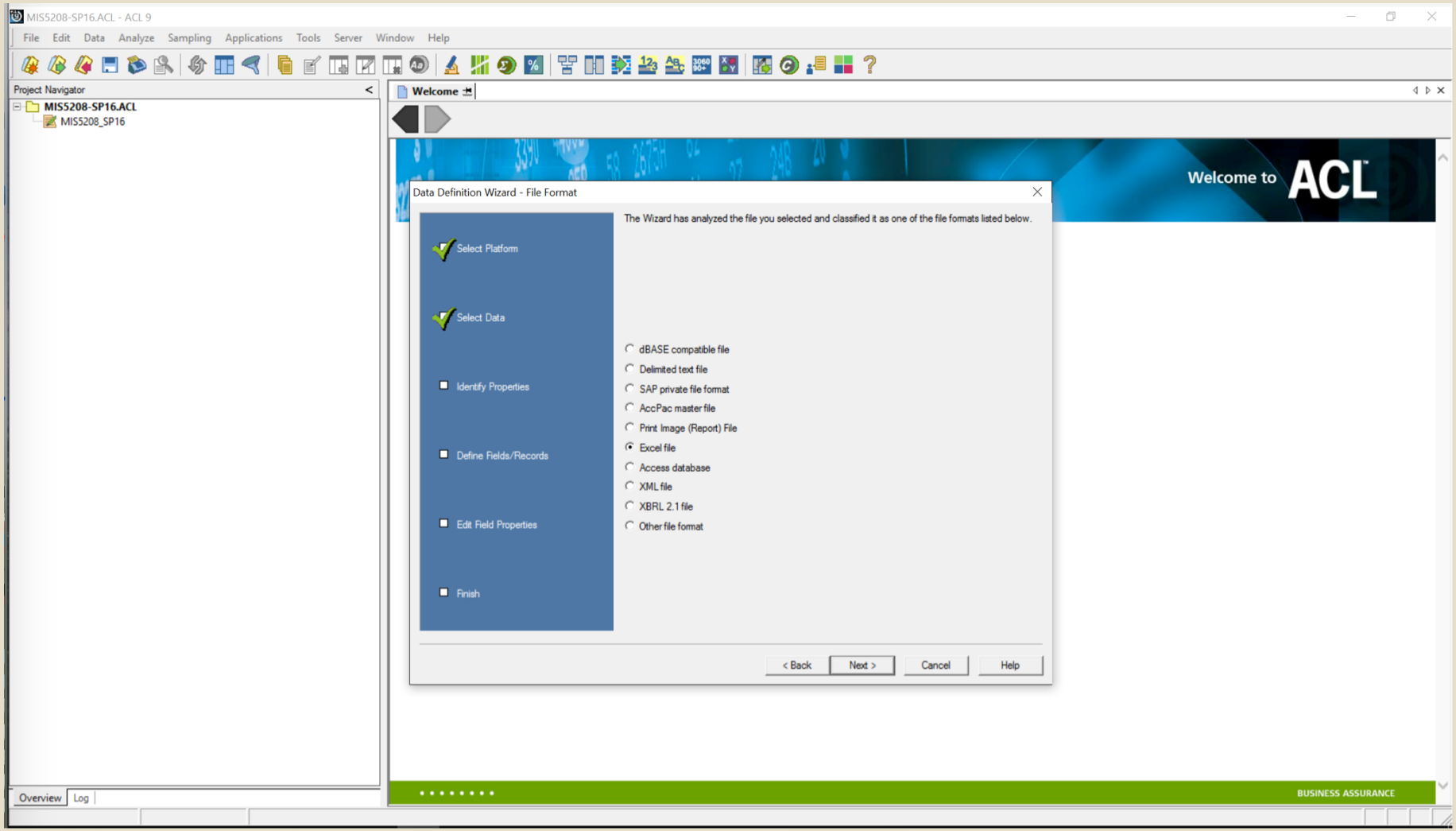


Data Import


MIS5208-SP16.ACL - ACL 9
File Edit Data Analyze Sampling Applications Tools Server Window Help
Project Navigator
MIS5208-SP16.ACL
MIS5208_SP16
Welcome
Welcome to ACL
Data Definition Wizard - File Format
Select Platform
Select Data
Identify Properties
Define Fields/Records
Edit Field Properties
Finish
The Wizard has analyzed the file you selected and classified it as one of the file formats listed below.
dBASE compatible file
Delimited text file
SAP private file format
AccPac master file
Print Image (Report) File
Excel file
Access database
XML file
XBRL 2.1 file
Other file format
< Back
Next >
Cancel
Help
Overview
Log
BUSINESS ASSURANCE

Data Import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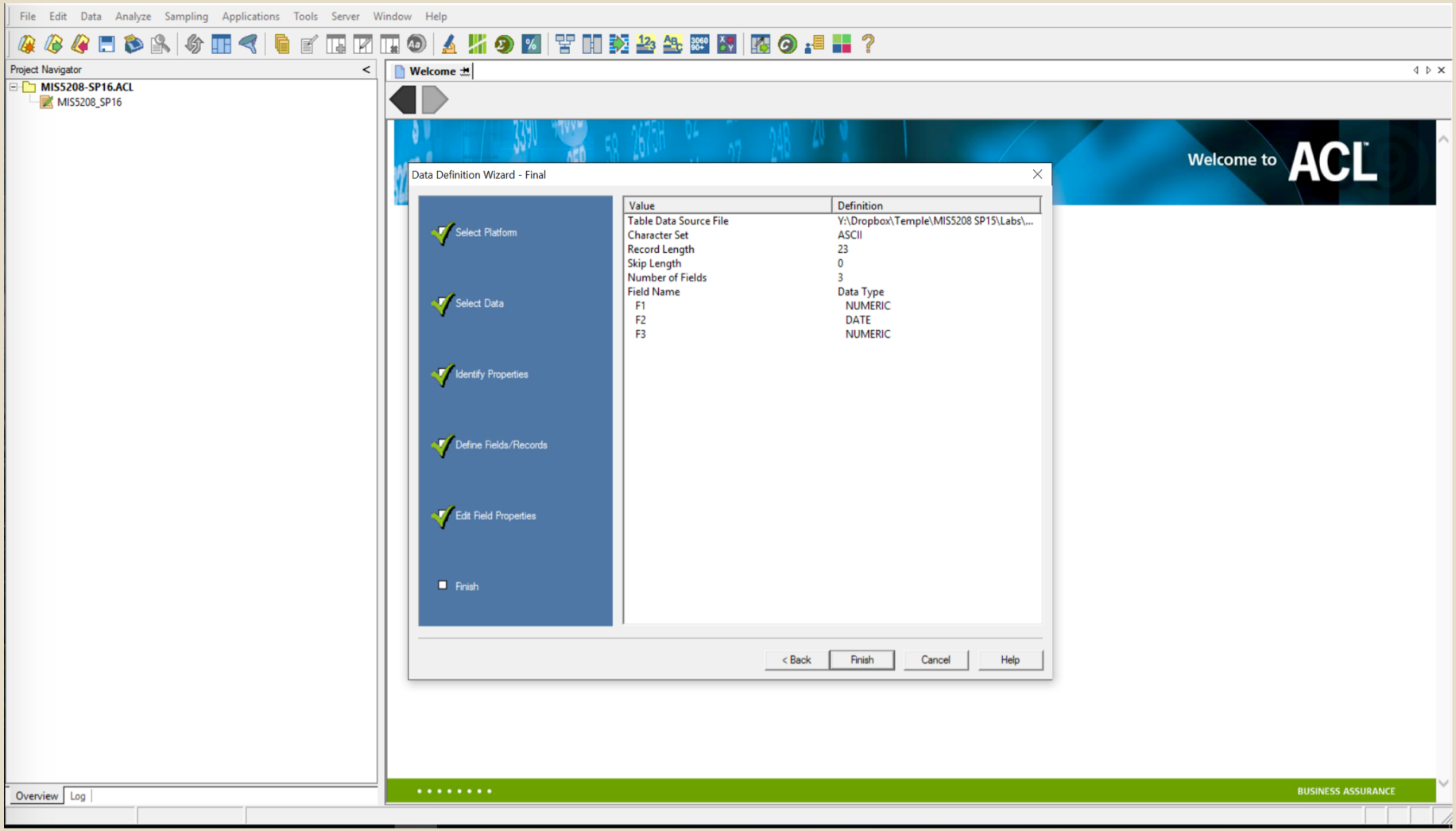
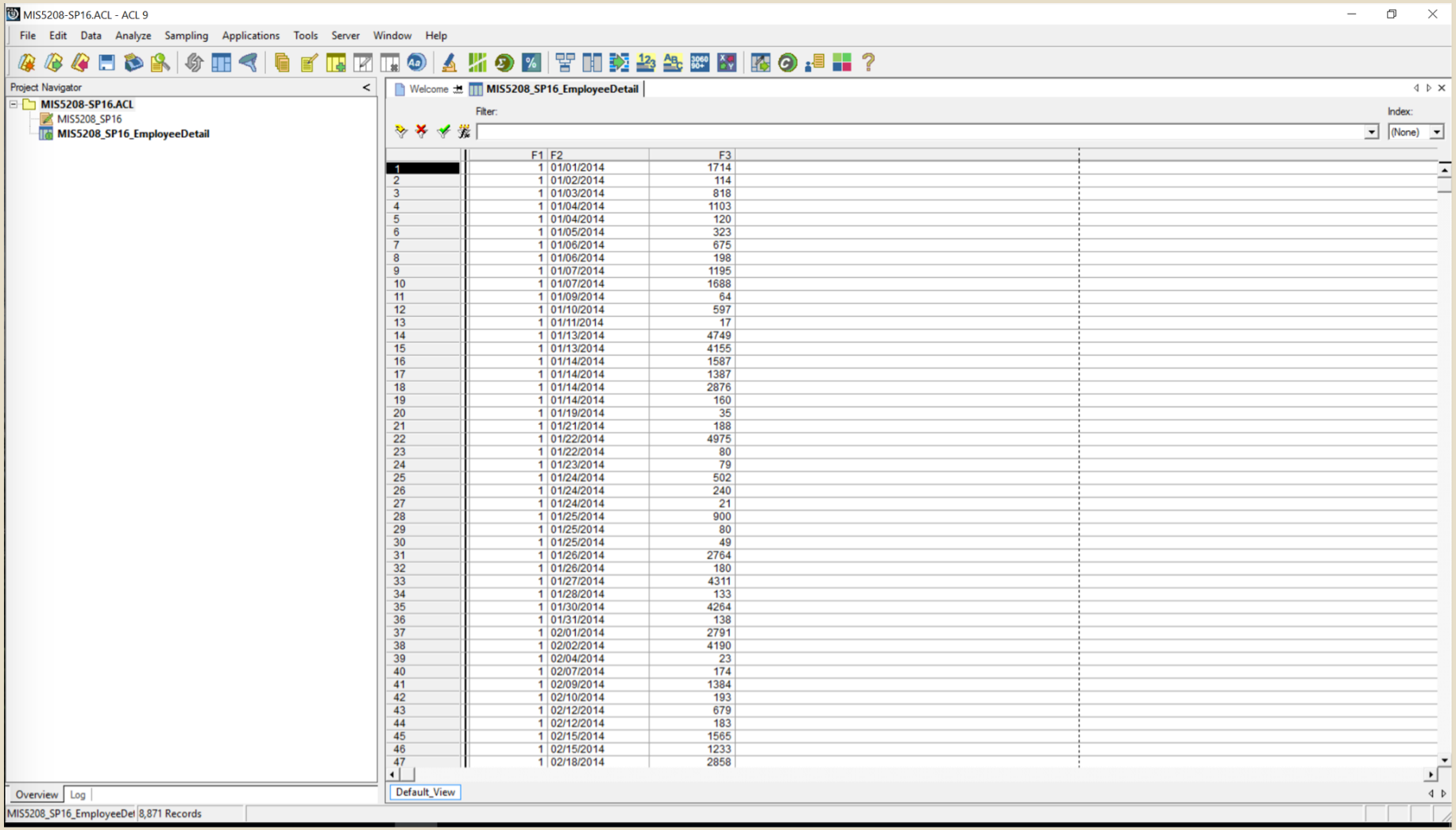
BUSINESS ASSURANCE

Finish the Import



Import Results



Open an Existing Project