

CIFOR Lab-Epi Integrated Reporting Software

2014



User
Guide

Introduction

A limited number of public health foodborne disease programs receive daily reports from their public health laboratory, and fewer still receive the information in a format which facilitates rapid identification of foodborne disease clusters. Programs with good data handling practices are generally more successful at identifying and successfully investigating in-state and multistate foodborne disease outbreaks. Rapid identification of foodborne disease clusters improves case recall during investigations and increases the chance that an outbreak will be solved and public health interventions will be successful.

Under the auspices of the Council to Improve Foodborne Outbreak Response (CIFOR), the Association of Public Health Laboratories (APHL) worked with a contractor and several pilot sites to develop software that facilitates structured reporting of laboratory data, leading to the rapid identification of foodborne disease clusters by public health personnel. The software has been designed to be database independent and platform independent, and represents a universal technology which can be used to improve outbreak detection until automated and continuous electronic epidemiology/laboratory links and cluster detection and evaluation mechanisms can be established. The software can also be used to share information between jurisdictions for regional surveillance, and may be modified to accept data from both epidemiology and laboratory systems to create integrated reports.

Product Overview

The CIFOR software is an open source application that accepts laboratory data files in a prescribed format (Table 1). The application analyzes patient laboratory results (e.g. serotype, subtype and other) to identify patterns or clusters that would suggest a possible outbreak or situation of interest. The application is intended as a tool for public health personnel conducting disease surveillance for foodborne pathogens to more quickly identify potential clusters of enteric illness **within their own jurisdiction**. It is a standalone, desktop application that does not use a web browser or internet access and does not share data with any other application.

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1. Software Installation

a) Technical Requirements

The CIFOR Lab-Epi software is written in Java as a desktop application. The application will reside as a Java jar file (Java archive) on a single PC. The PC must have the standard Java JRE installed in order for the application to run. The Java JRE should be the most current version.

The CIFOR application will run on any PC with a Windows Professional Operating System; XP, Vista, or 7 and at least 4mb of memory. If possible, use the most current Microsoft operating system (Windows 7) and a processor of at least Intel i5 capability to provide the best performance and user experience.

The user PC must also have Microsoft Excel installed in order to utilize options that allow a report to be displayed as an Excel spreadsheet.

The database manager used is Oracle 11g Express Edition. This version of the Oracle database manager can currently be downloaded from the Oracle website and is free of charge when used for software development and pilot testing. Each jurisdiction should read and understand the user license prior to downloading and using the software. Data will not be encrypted in the CIFOR database. Users will not need administrator rights to use the CIFOR application; however, administrator rights will likely be needed to install the Oracle database. As updated versions of the database are released, administrator rights may also be needed to run the new database scripts. Users will be notified as new versions of the database become available.

The CIFOR application runs as a desktop application that does not require use of a web browser or the internet. Access to the user's internal network is desirable in order to more easily access CSV files that have been extracted from BioNumerics and/or the Laboratory Information Management System (LIMS). The CSV files should be saved to a directory on the PC which the user will then import into the CIFOR database. The CIFOR application is password protected.

b) Creating the Directories

Use Windows Explorer to create the following directory and subdirectories on the C: drive of your PC.

C:\CIFOR

C:\CIFOR\Database_Scripts

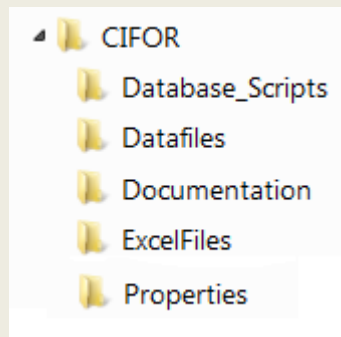
C:\CIFOR\Datafiles

C:\CIFOR\Documentation

C:\CIFOR\ExcelFiles

C:\CIFOR\Properties

When you have completed the directories, Windows Explorer should show a directory structure like the image below.



c) Downloading the CIFOR Software

The CIFOR Lab-Epi Software can be accessed via the CIFOR website at www.cifor.us. On the CIFOR home page click on “Current Projects” on the left hand navigation bar and then click on “Epidemiology-Laboratory Integrated Reporting Project”.

You will find the following files on the project page. Copy each file to the directory on your C: drive indicated after the file name below.

- | | | |
|------|-------------------------|-----------------------------------|
| I. | CIFOR.jar | copy to C:\CIFOR |
| II. | CIFOR_UserProperties | copy to C:\Properties |
| III. | CREATE_CIFOR_V3.sql | copy to C:\CIFOR\DataBase_Scripts |
| IV. | CIFOR_USER_GUIDE.pdf | copy to C:\CIFOR\Documentation |
| V. | CIFOR_Data_Mapping.xlsx | copy to C:\CIFOR\Documentation |

d) Installing the Oracle Database Manager

i. Follow the steps below to download and install the Oracle Express Edition 11g database.

1) Open your web browser and go to the Oracle website using the following link.

<http://www.oracle.com/us/downloads/index.html>

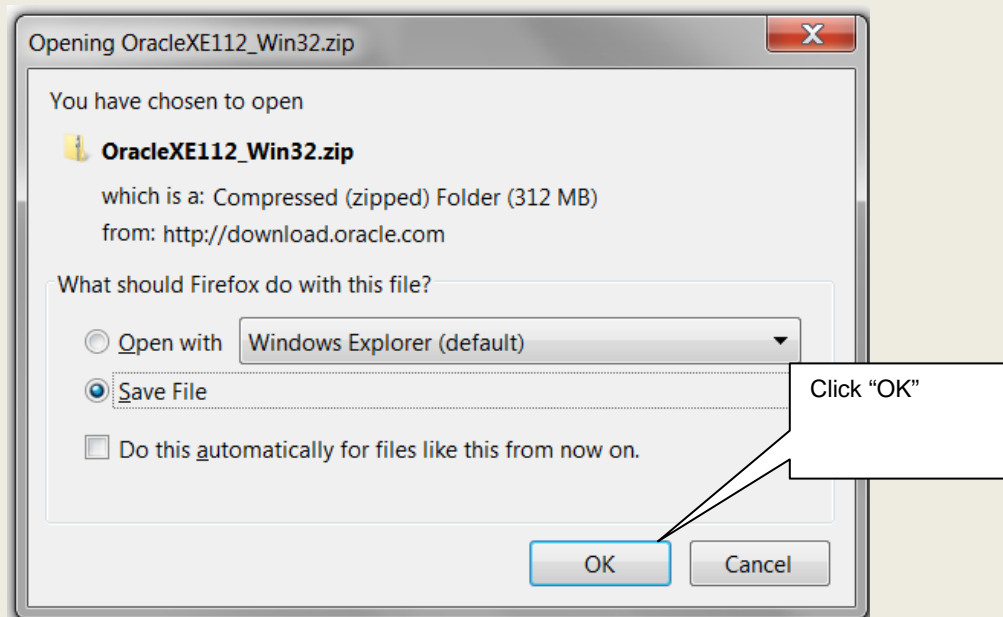
Under Database select ->Database 11g Express Edition. This will bring you to the following page:

The screenshot shows the Oracle website's download page for Oracle Database Express Edition 11g Release 2. The page has a navigation bar with links like Products and Services, Solutions, Downloads, Store, Support, Training, Partners, and About. Below the navigation bar, there's a breadcrumb trail: Oracle Technology Network > Products > Database Express Edition > Downloads. The main content area is titled "Oracle Database Express Edition 11g Release 2" and "September 2011". It states, "You must accept the OTN License Agreement for Oracle Database Express Edition 11g Release 2 to download this software." Below this, there are two radio buttons: "Accept License Agreement" (selected) and "Decline License Agreement". There are also links for "Oracle Database Express Edition 11g Release 2 for Windows x32" and "Oracle Database Express Edition 11g Release 2 for Linux x64". A callout box points to the "Accept License Agreement" radio button with the text "Click on 'Accept License Agreement'". Another callout box points to the "Oracle Database Express Edition 11g Release 2 for Windows x32" link with the text "Select the Windows x32 Edition". On the right side, there's a "Popular Downloads" section with links to various Oracle products like Berkeley DB, Enterprise Manager, Database EE and XE, Developer VMs, Enterprise Pack for Eclipse, Java, JDeveloper and ADF, Oracle Linux and Oracle VM, MySQL, NetBeans IDE, NoSQL Database, Solaris, SQL Developer, VirtualBox, and WebLogic Server. Below that, there's a "More Database Downloads" section with links to Database Express Edition and Database Instant Client.

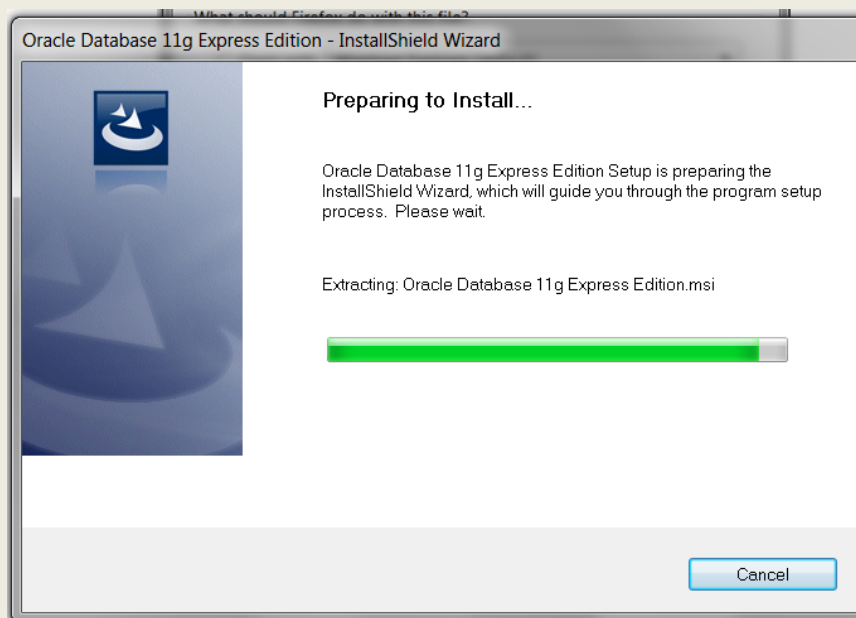
The next screen will ask you to Login to the Oracle website. If you don't already have an Oracle account (it's free), the site will ask you to create an account. Once this step is completed, the download process will begin.

The screenshot shows the Oracle Sign In page. It has a "Sign In" section with fields for "Username" and "Password". Below the password field, there are links for "Lost Username?" and "Lost Password?". There is a red "Sign In" button. Below the "Sign In" section, there is a section for "Don't have an Oracle account?" with a link to "Sign Up for a free Oracle Web account" and a link for "Need Help?". At the bottom, there is a footer with the text "Powered by Oracle Access Manager 11g" and a long line of small text about the site's intended use and legal notices. At the very bottom, there is a footer with the text "Hardware and Software Engineered to Work Together" and a link to "About Oracle | Contact Us | Legal Notices and Terms of Use | Privacy Policy".

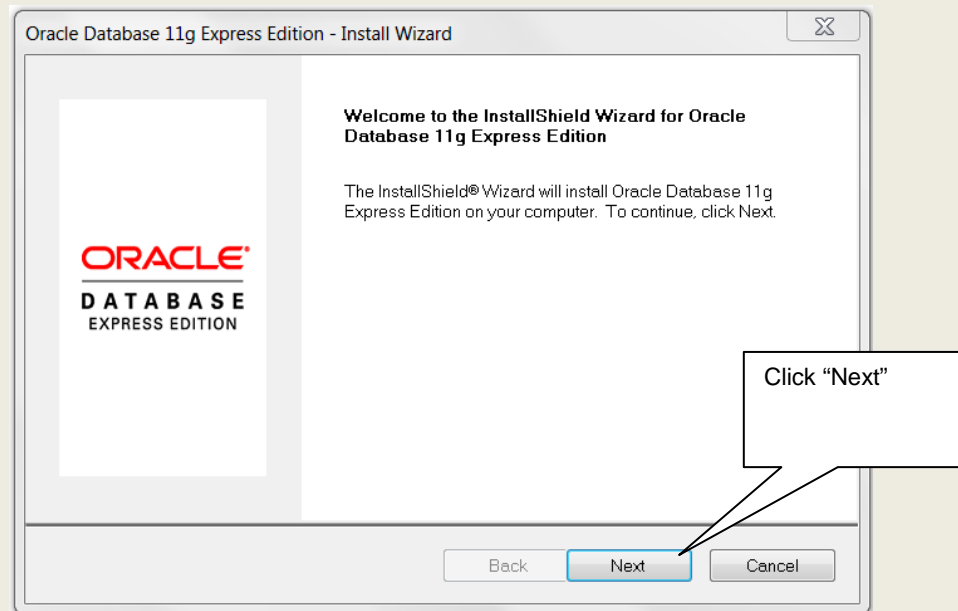
- 2) You will now see a screen asking what to do with the download file. Click OK to save the file.



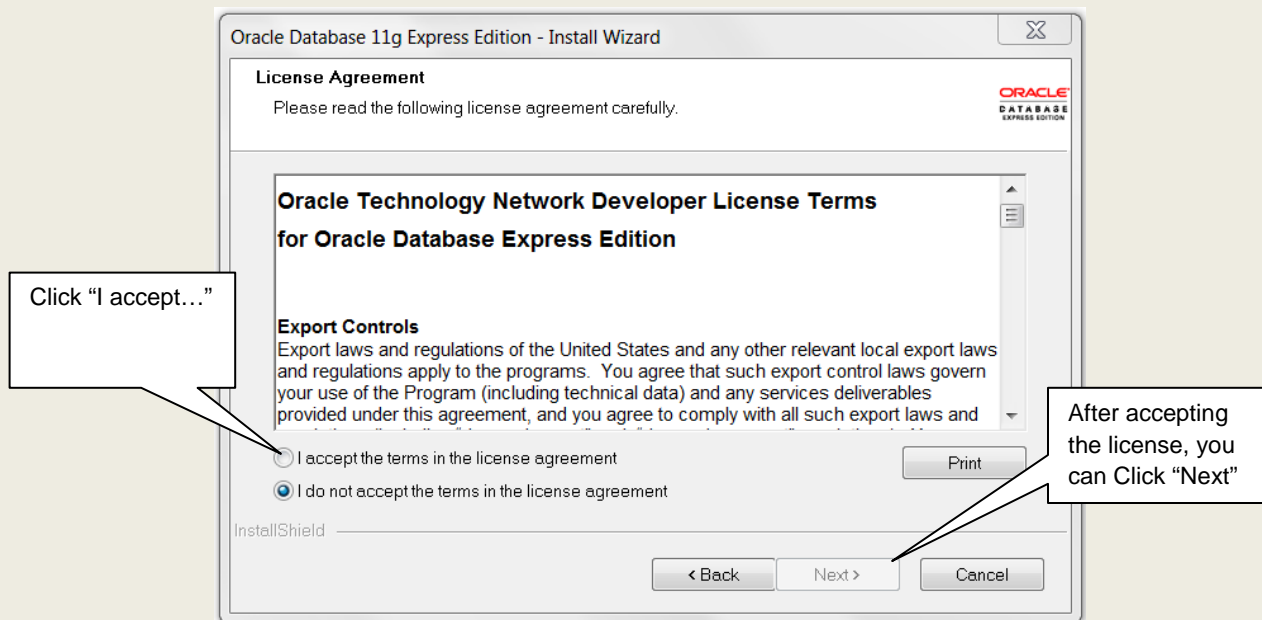
- 3) After the download is complete, create a new directory on your C:/ drive, called Oracle. The directory should be C:/Oracle. Then copy the Oracle file (OracleXE112_Win32) from your download directory to the C:/Oracle directory. Once the file has been copied to the new directory, you can double click on it. You will see a subdirectory called DISK1. Double click on the DISK1 directory and you will see a file called setup, which is an application file. Double click on the setup file to begin the installation.



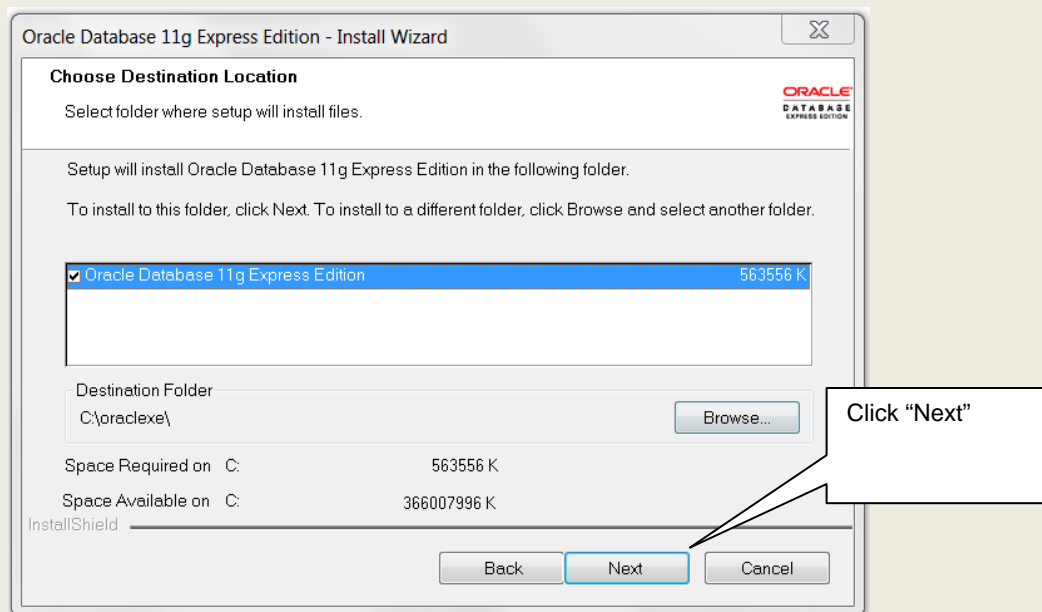
- 4) Now you will see a screen that will begin the installation of the Oracle 11g Express Edition database on your PC. Click on the Next button to begin the process.



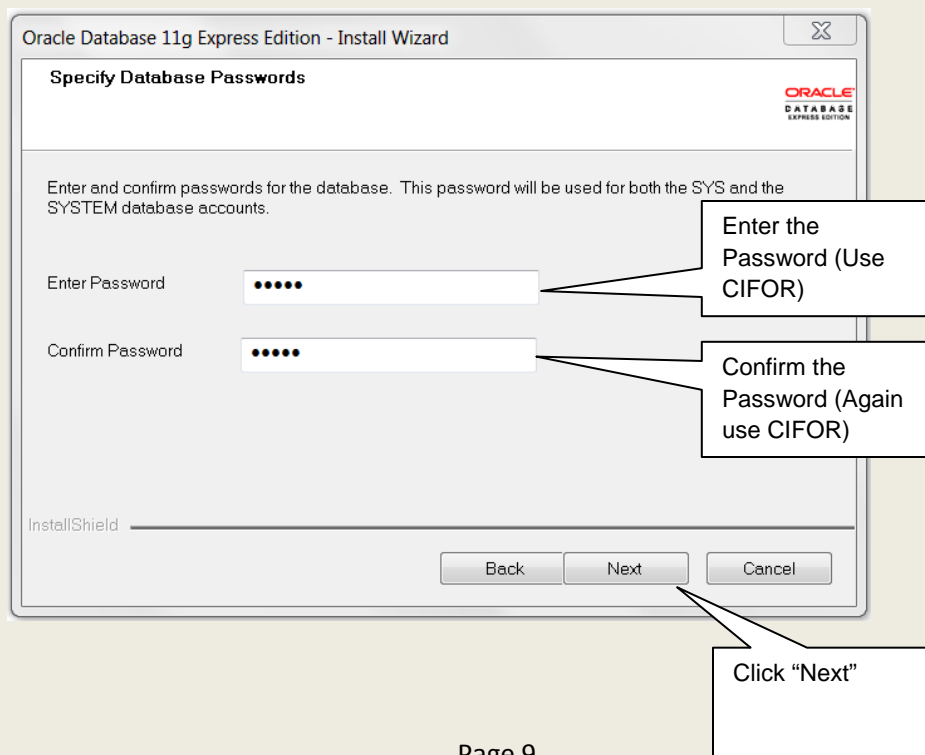
- 5) A screen will ask you to accept the license agreement. Click on the "I accept the terms in the license agreement" button. Now click on the "Next" button to continue with the installation.



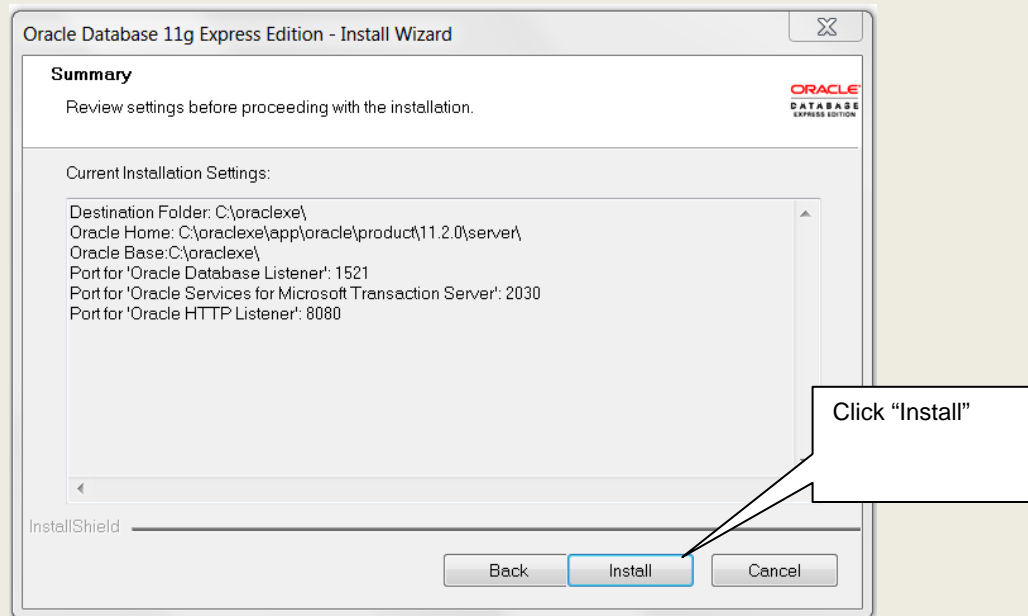
- 6) Now you see a window that is asking you to choose a destination location for the Oracle Express Edition software. Leave the default value and press the “Next” button to continue the installation.



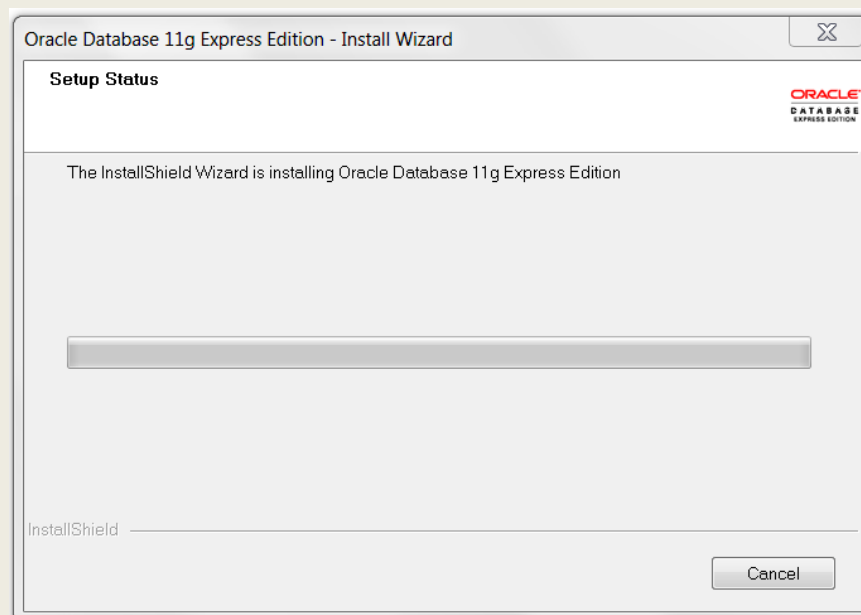
- 7) Now you will get a screen asking for the password you want to use for the CIFOR database. This password will be used for both the SYS and SYSTEM database accounts. (Use CIFOR as the password for both accounts.) After you have entered your password, be sure to record it for later use, and then click the “Next” button.



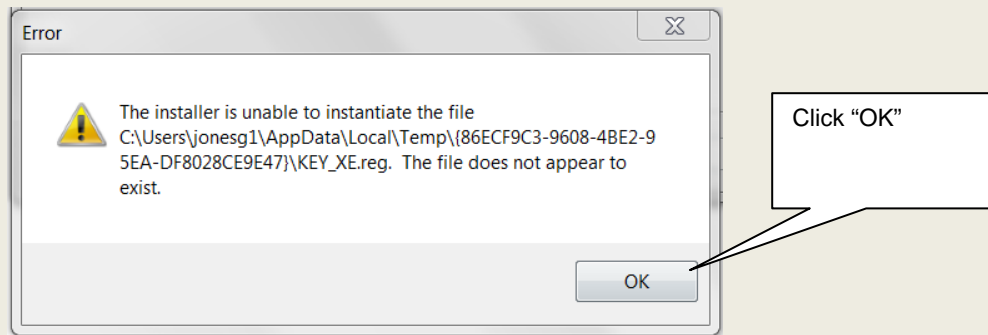
- 8) On the next screen, click the “Install” button to begin the installation.



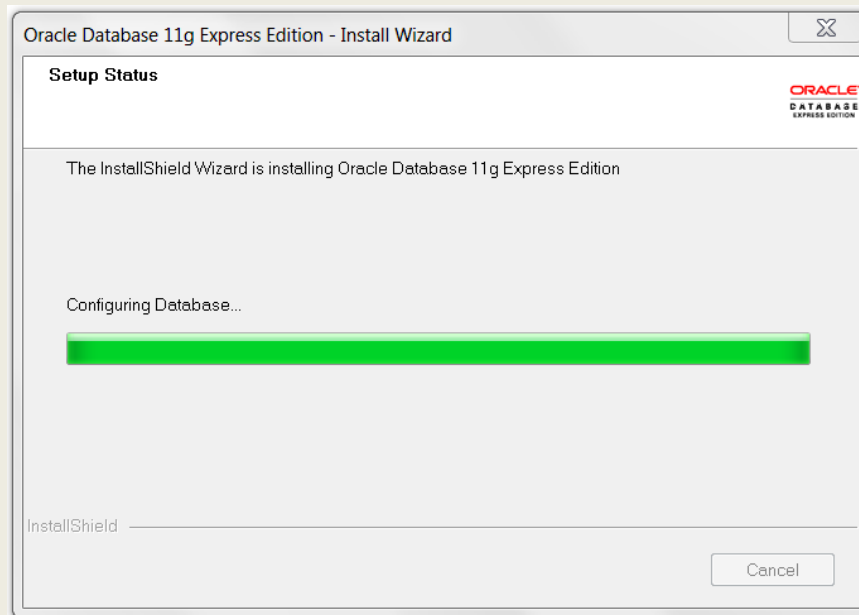
- 9) Now the actual installation of the Oracle 11g software will begin. You will see the following screen with the progress bar showing progress thru each of the database components.



- 10) Depending on the operating system on your PC, it is possible to see an error message like the following one. Just click on the “OK” button to continue the installation.



- 11) The installation process will continue.

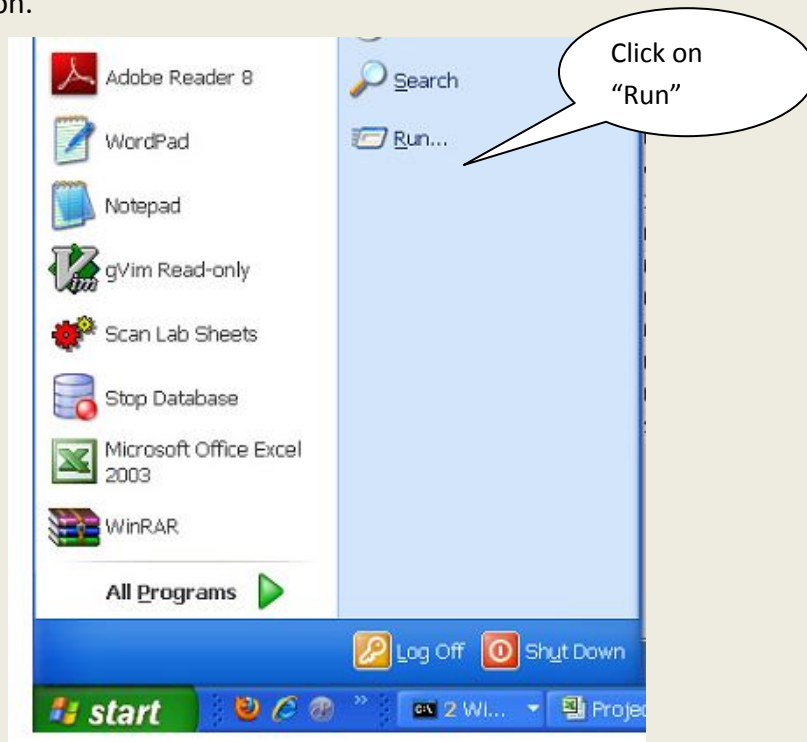


- 12) When the following screen is displayed, the installation process is complete and you can click the “Finish” button. The Oracle 11g database software is now installed and ready for use.

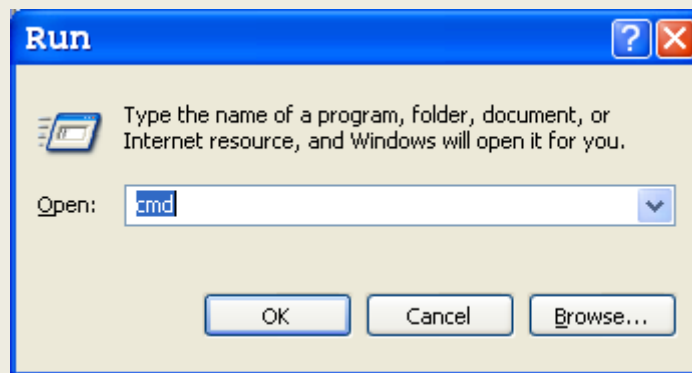


d. Creating the CIFOR Database

- i. Once the Oracle 11g database manager has been installed, you will create the CIFOR database and all of the database tables.
 - 1) Follow the instructions in step ii if your computer is running Windows XP or Vista.
 - 2) Follow the instructions in step iii if your computer is running Windows 7.
- ii. Windows XP or Vista.
 - 1) Click on the “Start” button on the bottom of your Windows screen then click on the “Run” icon.

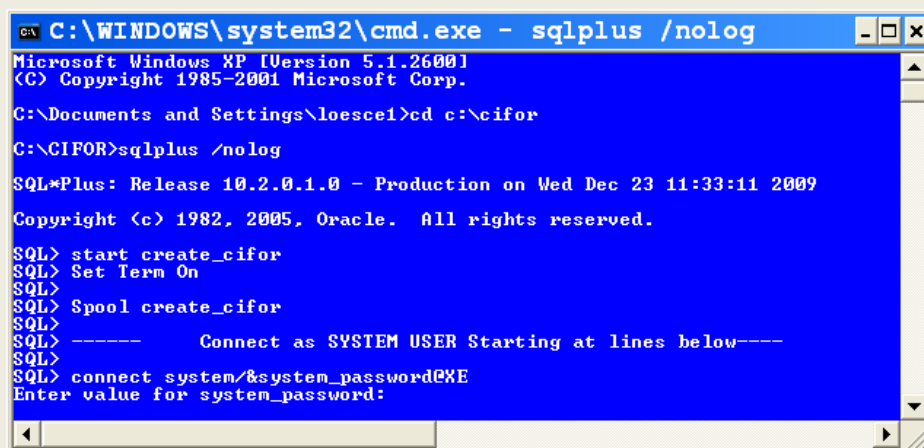


- 2) A command box (like the one below) will appear. Type “cmd” in this window and click “OK”.



Now you will get a Windows “dos” prompt. Enter the directory name where the CIFOR database script is stored, e.g.; `cd c:\CIFOR\database_scripts`.

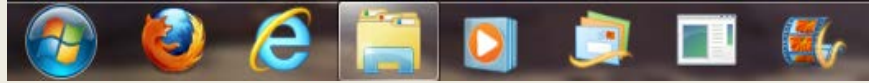
- 3) Type “dir” to see the directory contents.
- 4) Type “sqlplus /nolog” as shown below and hit “enter” on your keyboard.
- 5) Type “`start create_CIFOR_11g.sql`” and hit “enter” on your keyboard.
- 6) You will be prompted for the system password. If you used CIFOR when you loaded the Oracle Express database that is what you will enter. **NOTE: Passwords must be in upper-case!**
- 7) Now the script will run and the CIFOR database and all of the tables will be created.



iii. Windows 7.

- 1) Click on the “Start” button on the bottom of your Windows 7 screen.

Click on
“Start”



- 2) The following menu will appear. Now enter “Run” in the “Search programs and Files” box.

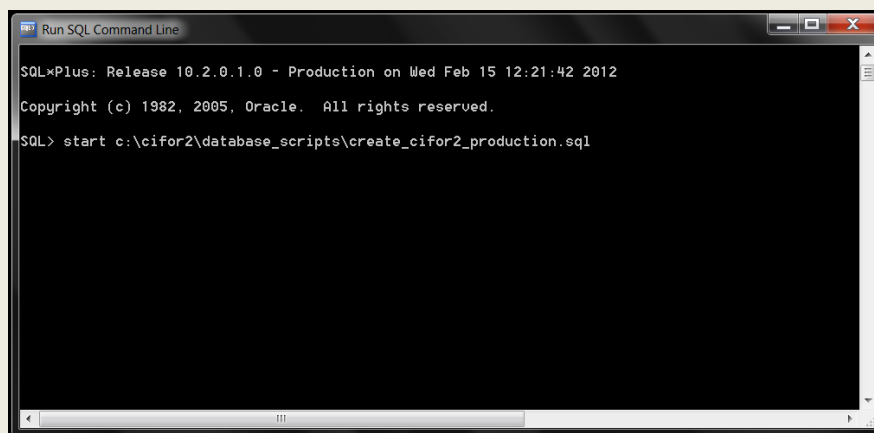
Enter “Run” in
this box and
press “Enter”



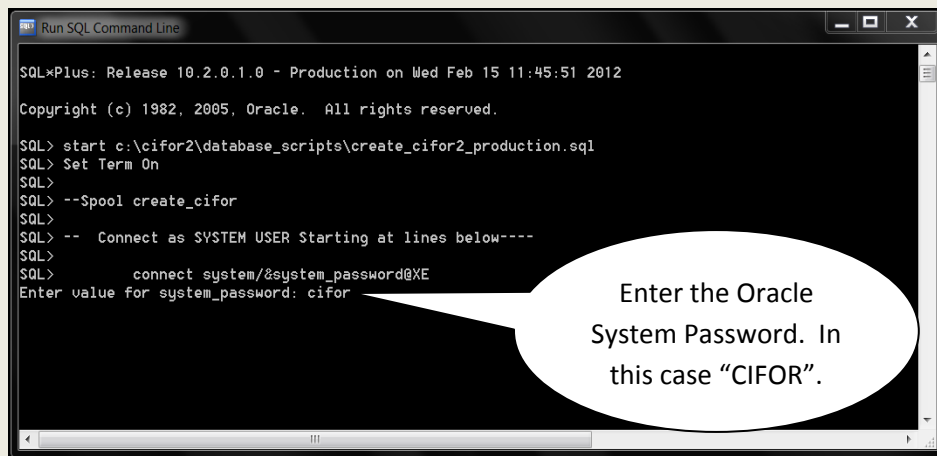
- 3) The SQL Command Line window will appear. Enter the following command:

`start c:\CIFOR\database_scripts\create_CIFOR_11g.sql`

Then press “Enter”. The script to create the CIFOR database will run.



- 4) You will be prompted for the system password. If you used CIFOR when you loaded the Oracle Express database that is what you will enter. NOTE! Passwords must be in upper-case.



```
Run SQL Command Line

SQL*Plus: Release 10.2.0.1.0 - Production on Wed Feb 15 11:45:51 2012

Copyright (c) 1982, 2005, Oracle. All rights reserved.

SQL> start c:\cifor2\database_scripts\create_cifor2_production.sql
SQL> Set Term On
SQL>
SQL> --Spool create_cifor
SQL>
SQL> -- Connect as SYSTEM USER Starting at lines below---
SQL>
SQL>      connect system/&system_password@XE
Enter value for system_password: cifor
```

Enter the Oracle System Password. In this case "CIFOR".

- 5) Now the script will run and the CIFOR database and all of the tables will be created.

iv. Final step in order to run the CIFOR application.

- 1) The CIFOR application file was downloaded in step 1 and should be located in the C:\CIFOR directory. You can check the CIFOR directory's using Windows Explorer.
- 2) Set up a CIFOR shortcut on your desktop to make it easy to start the CIFOR application:
 - a) Using Windows Explorer, go to the C:\CIFOR directory.
 - b) Look for a CIFOR.jar file. Right click on this file and select "Create shortcut" to put a shortcut icon on your desktop. You can call it "CIFOR".
- 3) Run the CIFOR application by simply clicking the CIFOR icon on your desktop.
- 4) Refer to section 3 of the CIFOR Users Guide for information on using the CIFOR application.
- 5) Use the C:\CIFOR\Datafiles directory to store the files you will be importing to the CIFOR database.

2. Creating the Import File

a. The File Format

The data elements that will be used to create the import file have been pre-determined, and include basic case and specimen identifiers, standard demographic information, and result information such as pathogen, serotype, and PFGE pattern (See Table 1 below).

The Import File must be formatted according to Table 1. Fields must be ordered as they appear in the table, be pipe “|” delimited and must meet the field size and field type indicated. Internal checks are in place within the CIFOR Import Program to validate the presence of data for required fields and the content of the fields where appropriate (e.g. date fields must be valid, etc.).

NOTE: It is recommended that users include all required fields in their import files. Records will not be imported into the database without a valid “Date Reported” as the resulting reports are sorted via this data element.

Table 1. Data Elements Required for the CIFOR Lab-Epi Software Input File					
Column Name	Description	Field Size	Field Type	Optionality	Example
Lab Specimen ID	Lab accession number	10	Alphanumeric	Required	2011001011, N01E001234
Submitter Specimen ID	Submitter specimen ID	20	Alphanumeric	Optional	
Specimen Source	Whatever source from which organism was isolated	20	Alphanumeric	Required	Stool, urine, blood, etc
Date Collected	Date specimen was collected	8-mmddyyyy	Numeric	Required	09072011
Date Received	Date specimen was received by the PHL	8-mmddyyyy	Numeric	Required	09152011
Date Reported	Date result was reported by the PHL	8-mmddyyyy	Numeric	Required	10012011
Primary Test	Primary test performed; Agent + Method	60	Alphanumeric	Optional	Enteric Culture
Organism	What was identified; agent name, genus and species	80	Alphanumeric	Required	<i>Salmonella</i> Newport
CDC Primary Enzyme Pattern	CDC Primary Enzyme Pattern	30	Alphanumeric	Required	

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CDC Secondary Enzyme Pattern	CDC Secondary Enzyme Pattern	60	Alphanumeric	Required	
Other Result	Additional result or subtype	80	Alphanumeric	Optional	Stx1 +, stx2
Submitter ID	Submitter ID, NPI, etc	20	Alphanumeric	Optional	
Submitter Name	Submitting hospital, clinic, doctor, or veterinarian	50	Alphanumeric	Optional	
Submitter State	Submitter state abbreviation	2	Alphabetic	Optional	
Patient ID	Patient ID provided by the submitter	20	Alphanumeric	Optional	
First Name	Patient first name	20	Alphanumeric	Required	
Middle Name	Patient middle name	20	Alphanumeric	Required	
Last Name	Patient last name	20	Alphanumeric	Required	
Multiple Unit	Patient apartment, building, PO, or suite number	30	Alphanumeric	Optional	
Street Address	Patient Street address	30	Alphanumeric	Optional	
City	Patient City name	30	Alphanumeric	Required	
State	Patient state abbreviation	2	Alphabetic	Optional	MN, TN, GA, etc.
County	Patient County	30	Alphanumeric	Required	County / Parish
Postal Code	5 digit patient postal code	5	Numeric	Optional	
Postal Code+4	4 digit patient postal code	4	Numeric	Optional	
Gender	Patient gender (M-male, F-female, O-other)	1	Alphabetic	Required	
Date of Birth	Patient DOB	8-mmddyyyy	Numeric	Optional	
Age	Patient age	3	Numeric	Required	
CDC Cluster Code	CDC assigned code for multi-state outbreak investigation	20	Alphanumeric	Optional	
Local Primary Enzyme Pattern	Local Secondary Enzyme Pattern	60	Alphanumeric	Optional	

Local Secondary Enzyme Pattern	Local Secondary Enzyme Pattern	60	Alphanumeric	Optional	
Region	Locally defined geographic area	20	Alphanumeric	Optional	

b. Pulling the Required Data Elements for the Import File

- i. You may need to pull required data elements from both BioNumerics and your LIMS.
- ii. A data mapping spreadsheet has been created from information from the original pilot sites that provides examples of possible variable names and locations (e.g. BioNumerics database or LIMS) for required data elements.

3. Personalizing the Database

a. Properties File

- i. The CIFOR application uses a special file called a "properties file". When you installed the application on your computer, one of the files you copied was called "CIFOR_UserProperties". This file contains some of the headings for the Cluster Report which can be changed by the user to better describe the data.
- ii. Here is a list of the contents of the file:

```
#####  
# This file contains properties that are user definable. A property may  
# be changed by replacing the text located after the "=" sign. This is  
# the value that the CIFOR Program is looking for.  
#
```

```
# Make sure a property line is not deleted!
```

```
#####  
#
```

```
#####  
# The "RegionName" parameter is used to define the text that describes  
# what the region field in the database is used for. For example,  
# the value could be "Region", "Territory", "District", or any value  
# that describes how the data in the field will be used.  
#####
```

```
RegionName          = Region
```

```
#####  
# The "Primary Pattern" is used to select which value is displayed and  
# printed as the Primary Pattern on the result record. If the value of  
# "PrimaryPattern" is "CDC" then the CDC Patterns will be displayed as  
# the Primary Patterns on the result line. If the "PrimaryPattern" is "Local"  
# then the local patterns will be displayed as the Primary Patterns on the result line.  
#  
# The "PrimaryPattern" can have a value of "CDC" or "Local".  
#####
```

```
PrimaryPattern      = CDC
```

```
#####  
# The "OnlyShowPrimaryPattern" value determines if only the pattern  
# selected as the primary pattern (CDC or Local) will be displayed, or  
# if both patterns (CDC & Local) will be displayed. If the value of  
# "OnlyShowPrimaryPattern" is "Yes" only one line (the result line) will  
# be displayed. If the value of "OnlyShowPrimaryPattern" is "No" then
```

```
# the result line will display the pattern selected as primary
# (CDC or Local) and a second line will display the other pattern.
#
# The "OnlyShowPrimaryPattern" can have a value of "Yes" or "No"
#####
```

OnlyShowPrimaryPattern = **No**

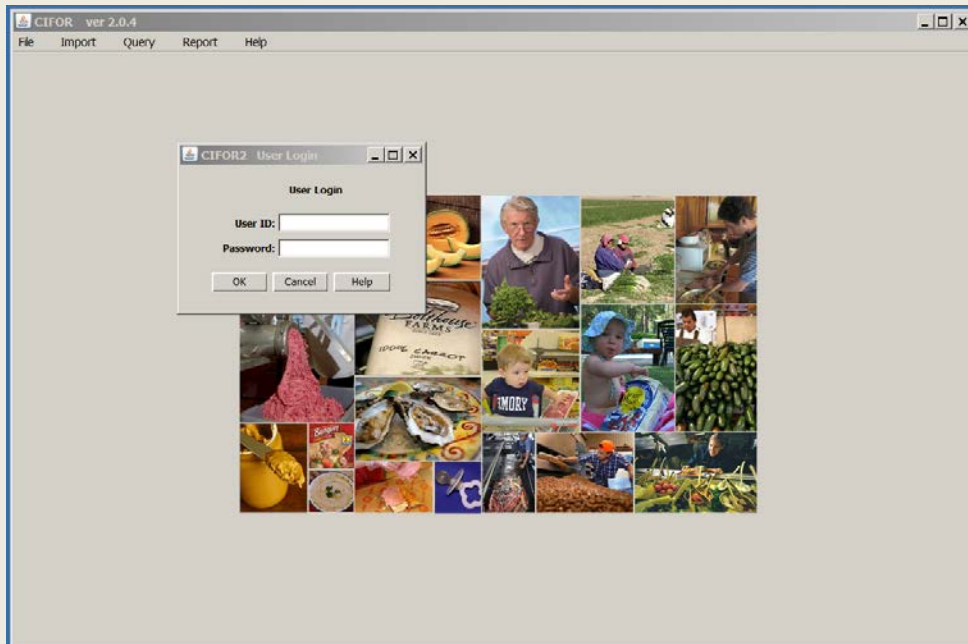
```
#####
# These are the headings for the Cluster Report
#####
ReportHeaderPrimaryCDC      = CDC Primary Enzyme Pattern
ReportHeaderSecondaryCDC    = CDC Secondary Enzyme Pattern
#
ReportHeaderPrimaryLocal    = Local Primary Enzyme Pattern
ReportHeaderSecondaryLocal  = Local Secondary Enzyme Pattern
#####
```

- iii. To make changes, open the file "C:/CIFOR/Properties/CIFOR_UserProperties" using Notepad. The items you see in **bold** are the only items you can change.
- iv. The first item you can change is the description for the "Region". This field is used as a heading on the Cluster Report, so if you wanted "**Region**" to be called "**Territory**", you would simply replace "**Region**" with "**Territory**".
- v. The second item you can change is not a report heading, but an identifier for which pattern should be displayed as the primary patterns on the report. If you use your local patterns, then you should change the identifier from "**CDC**" to "**Local**".
- vi. The third item you can change is called "OnlyShowPrimaryPattern" and has a value of "**Yes**" or "**No**". By default it is set to "No". If you want to show both the CDC and Local patterns, leave this value set to "No". If you only use one pattern, then change this value to "**Yes**".
Note! You will want to make sure that you have your primary pattern set correctly to ensure you show it on the report. For example, if you only use the CDC pattern, then make sure that the "PrimaryPattern" is set to "CDC" and the "OnlyShowPrimaryPattern" is set to "Yes".
- vii. The final items you can change are used for the Cluster Report headings for the CDC and Local Patterns. If you use a different description for these fields, you can change them to correspond with your descriptions. For example, if you call your local primary enzyme pattern "Lab Primary Pattern" then change "**Local Primary Enzyme Pattern**" to "**Lab Primary Pattern**". Do the same for any of the other pattern names.
- viii. Once you have finished making your changes, save the file and run the Cluster Report to see how your changes worked.

4. Using the CIFOR Software

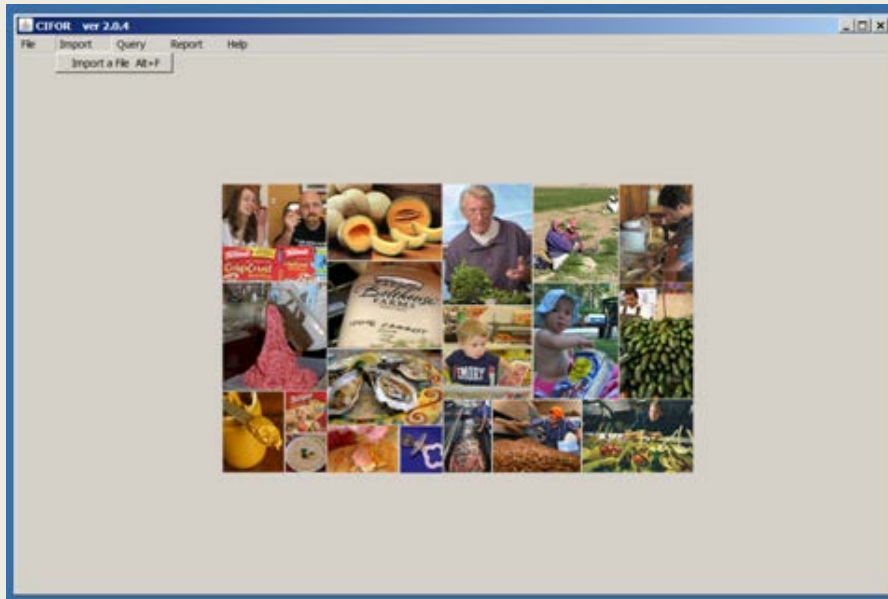
a. User Login

- i. After clicking on the desktop icon to start the CIFOR application, the user will see the following screen. Before the application can be used, you will have to enter a User ID (CIFOR) and a Password (CIFOR) in the login screen. When the User ID and Password have been entered, press the OK button on the User Login screen and the main CIFOR menu will be activated and ready for use.

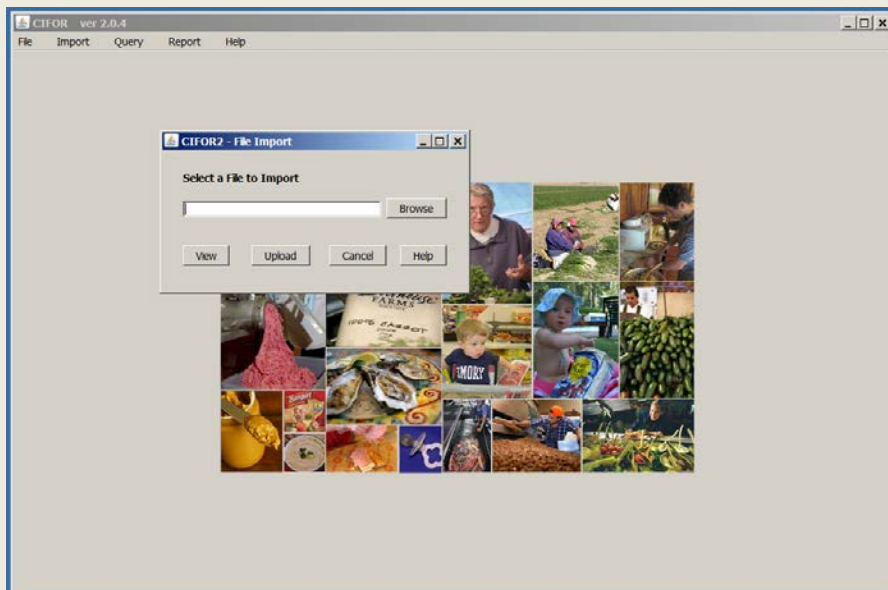


b. Importing Data

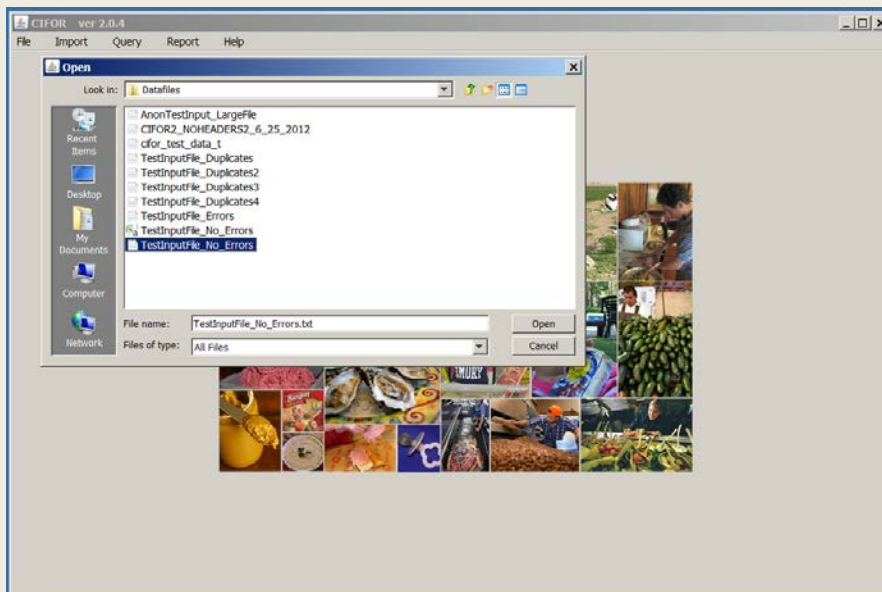
- 1) To import data into the CIFOR database, select “Import” on the menu bar. A sub-menu will appear, then select “Import a File” to start the Import process.



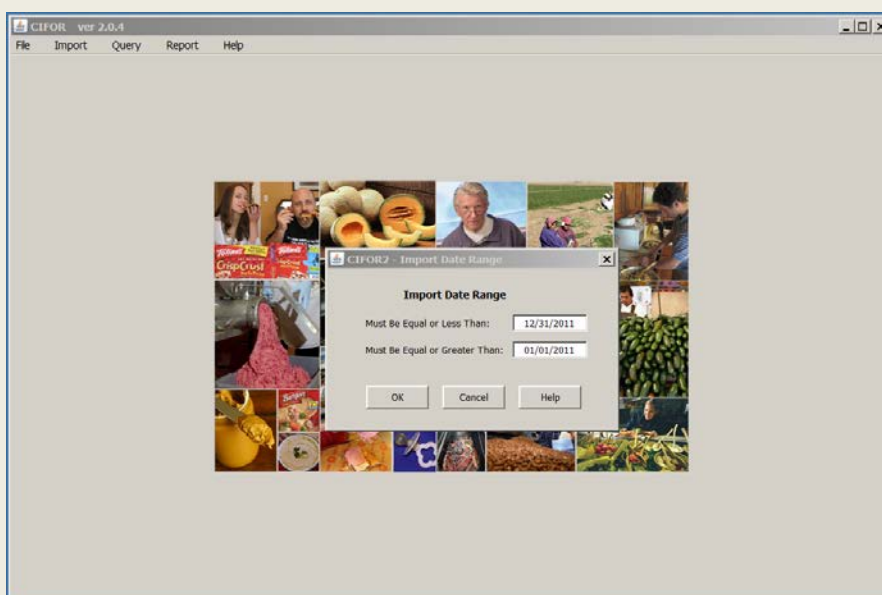
- b) A Parameter Screen will be displayed asking for the file to be imported. Click the Browse button.



- c) After clicking the Browse button, select the file to be imported. A list of files located in the C:\CIFOR\Datafiles directory will be displayed by default. You may also select the file from your server if that is where you choose to keep the files (e.g.; S:\). Select the file you wish to import by clicking on the file to highlight it and then clicking the Open button at the bottom of the Parameter screen (double clicking the file name will also open the file).

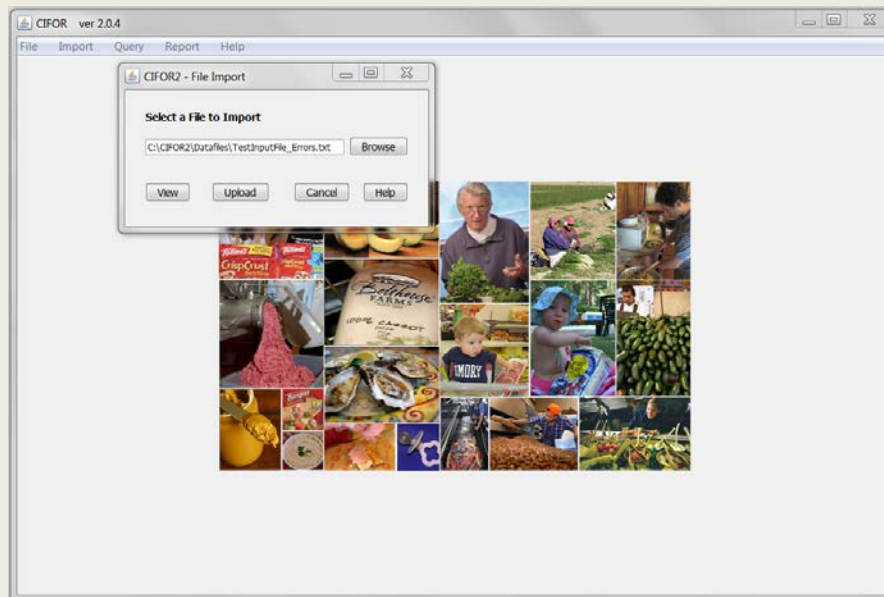


- d) After selecting the file, a parameter screen will be displayed asking for the import date range. The import date range is based on the Date Reported (the date a result is reported by the public health laboratory) for each record. Those records for which the Date Reported falls outside of the selected import data range will not be uploaded.



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- e) After selecting the file to be imported, a new screen will be displayed that allows the user to choose whether to view the file, upload the file, cancel the import operation, or ask for Help.



- f) **View**- The view function allows a user to double check that the desired file has been selected and is acceptable (e.g. populated, contains the required fields, etc.) before beginning the import process. Note, this is only a display window and no records can be selected or updated.

C:\CFOG - View Data Files		View Data Files		CFOG																				
Selected File: C:\CFOG\Batches\Batches\Batches_06_Firm.txt				CFOG																				
Current Date: 07/06/2013																								
Accession #	Subplan type	Date	File Name	Primary Test	Organization	Firm	Industry	Sec	Enzyme	Protein	Other	Result	Subst	Subst Name	Sub S	Preser.	F.FIR	PA	Sub	File Name	Firm	Sub	F City	F St
NEC000002	NEC000002	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002	NEC000002
NEC000003	NEC000003	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003	NEC000003
NEC000004	NEC000004	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004	NEC000004
NEC000005	NEC000005	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005	NEC000005
NEC000006	NEC000006	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006	NEC000006
NEC000007	NEC000007	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007	NEC000007
NEC000008	NEC000008	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008	NEC000008
NEC000009	NEC000009	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009	NEC000009
NEC000010	NEC000010	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010	NEC000010
NEC000011	NEC000011	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011	NEC000011
NEC000012	NEC000012	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012	NEC000012
NEC000013	NEC000013	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013	NEC000013
NEC000014	NEC000014	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014	NEC000014
NEC000015	NEC000015	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015	NEC000015
NEC000016	NEC000016	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016	NEC000016
NEC000017	NEC000017	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017	NEC000017
NEC000018	NEC000018	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018	NEC000018
NEC000019	NEC000019	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019	NEC000019
NEC000020	NEC000020	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020	NEC000020
NEC000021	NEC000021	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021	NEC000021
NEC000022	NEC000022	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022	NEC000022
NEC000023	NEC000023	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023	NEC000023
NEC000024	NEC000024	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024	NEC000024
NEC000025	NEC000025	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025	NEC000025
NEC000026	NEC000026	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026	NEC000026
NEC000027	NEC000027	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027	NEC000027
NEC000028	NEC000028	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028	NEC000028
NEC000029	NEC000029	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029	NEC000029
NEC000030	NEC000030	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030	NEC000030
NEC000031	NEC000031	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031	NEC000031
NEC000032	NEC000032	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032	NEC000032
NEC000033	NEC000033	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033	NEC000033
NEC000034	NEC000034	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034	NEC000034
NEC000035	NEC000035	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035	NEC000035
NEC000036	NEC000036	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036	NEC000036
NEC000037	NEC000037	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037	NEC000037
NEC000038	NEC000038	01/01/01	01/01/01	01/01/01	Enteric Bacteriology	Enterococcus faecalis	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038	NEC000038</	

- g) **Upload**- The upload function imports the selected file into the CIFOR database. When the upload process is completed, a series of Edit Reports will be displayed.

CIFOR2 - View Data Files

Input File: C:\CIFOR2\database\Temp\inputfile_errors.txt

CIFOR2 Edit Report

Run Date: 07/09/2012 From Dates: 01/01/2011 To: 12/31/2011

Buttons: [Print]

Tabs: Error Records | Updated Records | Recap Report

Record No.	Accession No.	Date Collected	Date Received	Date Reported	Patient DOB	Error Description
3	IN01000004	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Invalid Date Reported
19	IN01000020	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Invalid Patient DOB
35	IN01000030	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Organism Field is too long
36	IN01000037	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Organism Field is too long
37	IN01000038	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Organism Field is too long
39	IN01000040	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Organism Field is too long
41	IN01000042	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Organism Field is too long
43	IN01000044	01/01/2011	01/01/2011	01/01/2011	01/01/2011	Organism Field is too long

- The **Error Records** report will show the records that have been rejected with errors and a brief description of the error.
- The **Updated Reports** report (Tab 2) allows a user to view records that have been added and/or changed in the CIFOR database. Users can upload both previously imported and/or new records into the CIFOR database. Pre-existing records are overwritten or updated accordingly (if new information is available since last upload).
- The **Recap Report** (Tab 3) provides a summary of the total number of records added, updated, rejected due to errors, and skipped. Those records that fall outside of the selected input date range are excluded from the import. Therefore, it is recommended that users carefully consider the input date range based on the files being imported



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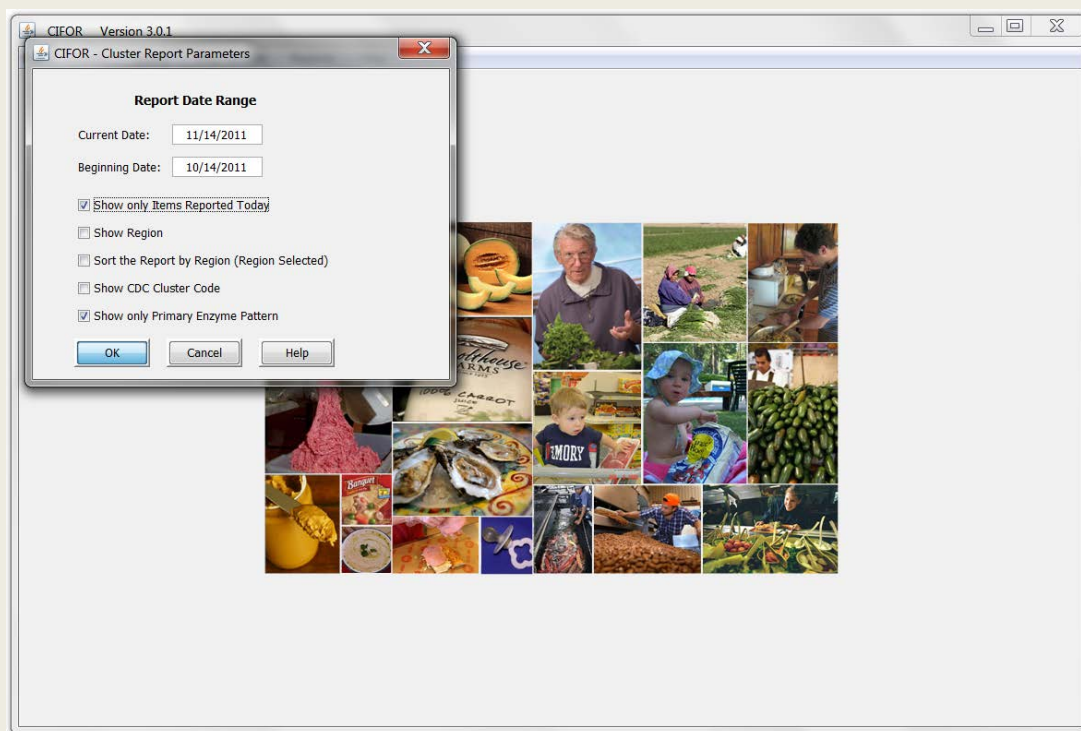
- i. The software has two main reports that should be used in tandem for optimal results: the Cluster Report and the Frequency Analysis.
 - 1) The Cluster Report provides a listing of all new/ updated patient results along with any exact matches to those results over a timeframe specified by the user.
 - 2) The Frequency Analysis report provides historical counts of all recent patient laboratory results (by organism, primary or secondary enzyme, other result or any combination thereof) within the past three months and the past five years.
- ii. The software also includes a Detail Query Report that can be used for ad-hoc queries of the entire database.

NOTE: The Cluster Report and Frequency Analysis should be run daily to closely monitor matches to new and/or updated patient results.

d. The Cluster Report

- i. While on the main screen, click on Report on the menu bar top left. You will see a drop-down sub-menu listing the Cluster and Frequency Analysis Reports.
- ii. Select the Cluster Report.
- iii. Next, you will see a parameter window with Current and Beginning Date fields. The Current Date defaults to today's date and the Beginning Date defaults to 30 days prior to today's date. Note that the box is checked for "Show only Items Reported Today". To view new/updated results for today and any matches run the report as is.

The goal of the software is to more quickly detect potential foodborne disease clusters by providing a means of continuous monitoring of newly reported results and subsequent matches. It is recommended that users first run the cluster report with the default settings then adjust the parameters as desired.



- iv. To view matches to older results, uncheck the box "Show only Items Reported Today" and input the desired date range.
- v. Check the "Show Region" or "Sort the Report by Region" boxes if you use the Region Field in the CIFOR database and want it displayed on the report.
- vi. Check the "Show CDC Cluster Code" box if you use the CDC Cluster Code in the CIFOR database and you want it displayed on the report.
- vii. Check or uncheck the "Show only Primary Enzyme Pattern" box to show only the Primary Enzyme Pattern or to show both the Primary and Local Patterns on the report.
- viii. Once you have entered the parameters, click the OK button to see the report

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- ix. The Cluster Report will be displayed in a scrolling window for review. The window can scroll vertically and on a smaller monitor can scroll horizontally as well.

Current Date: 11/14/2011
Beginning Date: 10/14/2011

Cluster Report

Accession No.	First Name	Last Name	City	State	County	Age	Organism	CDC Primary Enzyme	CDC Secondary Enzyme P.	Other Result	Date Collected	Date Received	Date Reported
AC17000001	Renee	Alber	Bluff City	TN	Sullivan	54	Campylobacter jejuni				2011-10-28	2011-11-02	2011-11-02
AC17000002	Albert	White	Knoxville	TN	Knox	66	Campylobacter jejuni				2011-10-31	2011-11-02	2011-11-02
AC15000001	Kelly	Dodge	Knoxville	TN	Knox	56	Campylobacter jejuni				2011-11-03	2011-11-03	2011-11-03
AC11000000	Jason	Medman	Kutledge	TN	Knox	0	Campylobacter jejuni				2011-10-19	2011-10-19	2011-11-04
AC15000074	Hernandez	Jackson	McKeesport	NC	Out of State	0	Campylobacter jejuni				2011-10-18	2011-10-18	2011-11-02
AC15000070	Jill	Brady	Knoxville	TN	Sevier	27	Campylobacter jejuni				2011-10-17	2011-10-24	2011-10-27
AC15000071	Donna	Johnson	Glennville	VA	Out of State	70	Campylobacter jejuni				2011-10-10	2011-10-14	2011-10-18
AC17000008	Rue	Long	Bluff City	TN	Sullivan	52	Salmonella enteritidis	950401.0004			2011-11-04	2011-11-04	2011-11-04
AC17000007	Orville	Rail	Knox	TN	Sevier	18	Salmonella enteritidis	950401.0003			2011-11-04	2011-11-04	2011-11-04
AC17000005	John	Lavender	Knoxville	TN	Knox	72	Salmonella enteritidis	950401.0001			2011-10-27	2011-11-04	2011-11-04
AC17000004	Donald	Wright	Knoxville	TN	Knox	3	Salmonella enteritidis	950401.0001			2011-11-02	2011-11-04	2011-11-04
AC17000000	Renee	Green	Knoxville	TN	Knox	8	Salmonella enteritidis	950401.0001			2011-11-01	2011-11-04	2011-11-04
AC17000003	Wendell	Knox	Knoxville	TN	Knox	1	Salmonella enteritidis	950401.0001			2011-11-02	2011-11-04	2011-11-04
AC17000000	Martha	Dodge	McKeesport	NC	Out of State	64	Salmonella enteritidis	950401.0001			2011-11-05	2011-11-04	2011-11-04
AC17000000	Peter	Medman	Kutledge	TN	Sevier	0	Salmonella enteritidis	950401.0001			2011-11-04	2011-11-04	2011-11-04
AC17000002	Vinny	Downs	Knoxville	TN	Knox	18	Salmonella enteritidis	950401.0001			2011-11-05	2011-11-04	2011-11-04
AC17000000	Nancy	Dup	Kutledge	TN	Knox	0	Salmonella enteritidis	950401.0001			2011-11-04	2011-11-04	2011-11-04
AC17000005	Bob	Pan	Bristol	TN	Sullivan	2	Salmonella enteritidis	950401.0001			2011-11-03	2011-11-04	2011-11-04
AC17000000	Natalie	Hartley	Sevier	TN	Sevier	19	Salmonella enteritidis	950401.0001			2011-11-02	2011-11-04	2011-11-04
AC17000003	Jason	Dup	Knoxville	TN	Knox	1	Salmonella enteritidis	950401.0001			2011-10-21	2011-11-02	2011-11-04

Print Options

☒ Header: Cluster Report - Today's Reports

☒ Footer: Date Range From: 10/14/2011 To: 11/14/2011 Report Page (0)

New results
reported
today

- x. All new results reported today are shaded to draw the user's eye quickly.
- xi. Results are matched based on 1) Organism 2) CDC/ Local Primary Enzyme Pattern 3) CDC/ Local Secondary Enzyme Pattern and 4) Other Result in that order.
- xii. Results can be sorted by any column to allow the user to hone in on a particular cluster or grouping of interest.
- xiii. The Cluster Report can be printed by clicking on the Print button on the bottom of the report window. Select Properties on the printer window to change the printing properties and margins.

Current Date: 11/14/2011
Beginning Date: 10/14/2011

Cluster Report

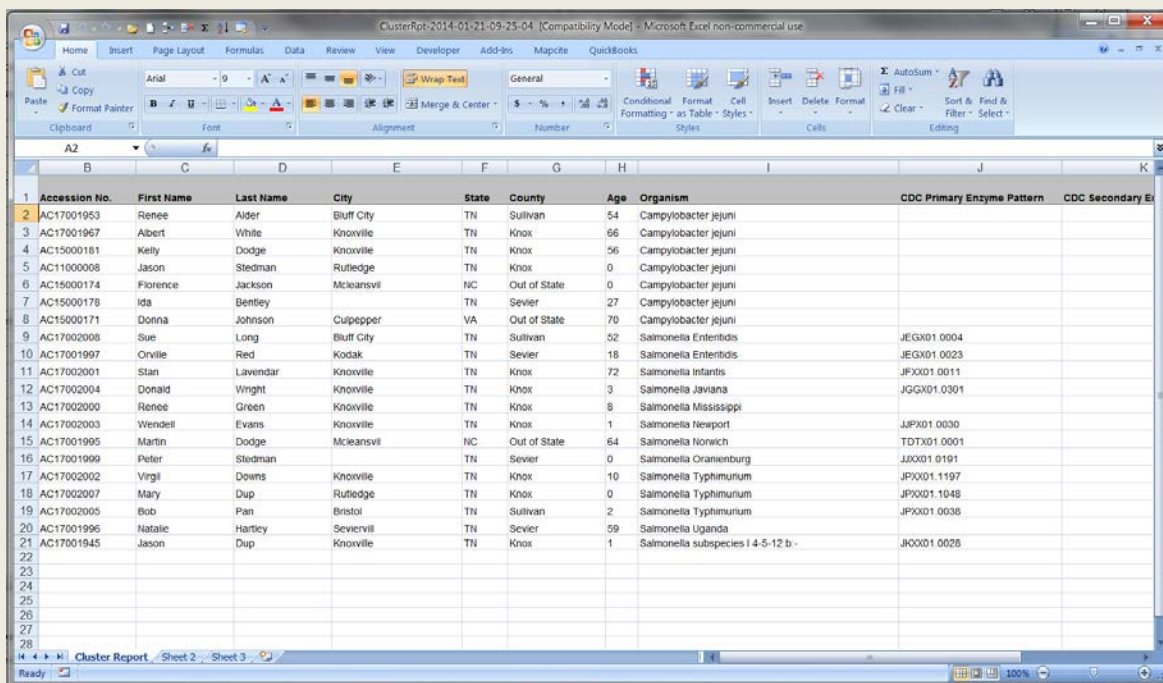
Accession No.	First Name	Last Name	City	State	County	Age	Organism	CDC Primary Enzyme	CDC Secondary Enzyme P.	Other Result	Date Collected	Date Received	Date Reported
AC17000001	Renee	Alber	Bluff City	TN	Sullivan	54	Campylobacter jejuni				2011-10-28	2011-11-02	2011-11-02
AC17000002	Albert	White	Knoxville	TN	Knox	66	Campylobacter jejuni				2011-10-31	2011-11-02	2011-11-02
AC15000001	Kelly	Dodge	Knoxville	TN	Knox	56	Campylobacter jejuni				2011-11-03	2011-11-03	2011-11-03
AC11000000	Jason	Medman	Kutledge	TN	Knox	0	Campylobacter jejuni				2011-10-19	2011-10-19	2011-11-04
AC15000074	Hernandez	Jackson	McKeesport	NC	Out of State	0	Campylobacter jejuni				2011-10-18	2011-10-18	2011-11-02
AC15000070	Jill	Brady	Knoxville	TN	Sevier	27	Campylobacter jejuni				2011-10-17	2011-10-24	2011-10-27
AC15000071	Donna	Johnson	Glennville	VA	Out of State	70	Campylobacter jejuni				2011-10-10	2011-10-14	2011-10-18
AC17000008	Rue	Long	Bluff City	TN	Sullivan	52	Salmonella enteritidis	950401.0004			2011-11-04	2011-11-04	2011-11-04
AC17000007	Orville	Rail	Knox	TN	Sevier	18	Salmonella enteritidis	950401.0003			2011-11-04	2011-11-04	2011-11-04
AC17000005	John	Lavender	Knoxville	TN	Knox	72	Salmonella enteritidis	950401.0001			2011-10-27	2011-11-04	2011-11-04
AC17000004	Donald	Wright	Knoxville	TN	Knox	3	Salmonella enteritidis	950401.0001			2011-11-02	2011-11-04	2011-11-04
AC17000000	Renee	Green	Knoxville	TN	Knox	8	Salmonella enteritidis	950401.0001			2011-11-01	2011-11-04	2011-11-04
AC17000003	Wendell	Knox	Knoxville	TN	Knox	1	Salmonella enteritidis	950401.0001			2011-11-02	2011-11-04	2011-11-04
AC17000000	Martha	Dodge	McKeesport	NC	Out of State	64	Salmonella enteritidis	950401.0001			2011-11-05	2011-11-04	2011-11-04
AC17000000	Peter	Medman	Kutledge	TN	Sevier	0	Salmonella enteritidis	950401.0001			2011-11-04	2011-11-04	2011-11-04
AC17000002	Vinny	Downs	Knoxville	TN	Knox	18	Salmonella enteritidis	950401.0001			2011-11-05	2011-11-04	2011-11-04
AC17000000	Nancy	Dup	Kutledge	TN	Knox	0	Salmonella enteritidis	950401.0001			2011-11-04	2011-11-04	2011-11-04
AC17000005	Bob	Pan	Bristol	TN	Sullivan	2	Salmonella enteritidis	950401.0001			2011-11-03	2011-11-04	2011-11-04
AC17000000	Natalie	Hartley	Sevier	TN	Sevier	19	Salmonella enteritidis	950401.0001			2011-11-02	2011-11-04	2011-11-04
AC17000003	Jason	Dup	Knoxville	TN	Knox	1	Salmonella enteritidis	950401.0001			2011-10-21	2011-11-02	2011-11-04

Print Options

☒ Header: Cluster Report - Today's Reports

☒ Footer: Date Range From: 10/14/2011 To: 11/14/2011 Report Page (0)

- xiv. Should further analysis be desired, the user can export the report into excel. Click on the Excel button on the bottom of the report window. The spreadsheet will be created and then saved in the C:\CIFOR\Excel directory on your PC. The Excel spreadsheet data can be manipulated in any way without affecting the CIFOR database.



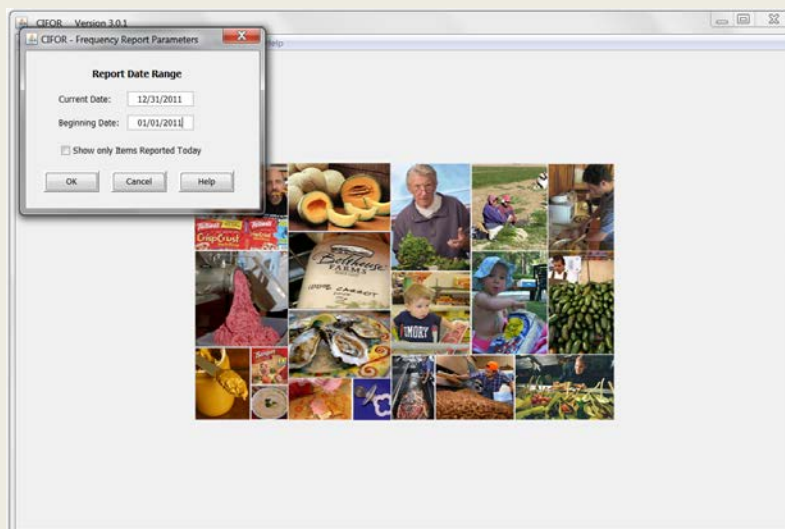
	Accession No.	First Name	Last Name	City	State	County	Age	Organism	CDC Primary Enzyme Pattern	CDC Secondary Enzyme Pattern
2	AC17001953	Renee	Alder	Bluff City	TN	Sullivan	54	Campylobacter jejuni		
3	AC17001967	Albert	White	Knoxville	TN	Knox	66	Campylobacter jejuni		
4	AC15000181	Kelly	Dodge	Knoxville	TN	Knox	56	Campylobacter jejuni		
5	AC11000008	Jason	Stedman	Rutledge	TN	Knox	0	Campylobacter jejuni		
6	AC15000174	Florence	Jackson	McLeansville	NC	Out of State	0	Campylobacter jejuni		
7	AC15000178	Ida	Bentley		TN	Sevier	27	Campylobacter jejuni		
8	AC15000171	Donna	Johnson	Culpepper	VA	Out of State	70	Campylobacter jejuni		
9	AC17002008	Sue	Long	Bluff City	TN	Sullivan	52	Salmonella Enteritidis	JEGX01.0004	
10	AC17001997	Orville	Red	Kodak	TN	Sevier	18	Salmonella Enteritidis	JEGX01.0023	
11	AC17002001	Stan	Lavendar	Knoxville	TN	Knox	72	Salmonella Infantis	JFXX01.0011	
12	AC17002004	Donald	Wright	Knoxville	TN	Knox	3	Salmonella Javiana	JJGX01.0301	
13	AC17002000	Renee	Green	Knoxville	TN	Knox	8	Salmonella Mississippi		
14	AC17002003	Wendell	Evans	Knoxville	TN	Knox	1	Salmonella Newport	JJPX01.0030	
15	AC17001995	Martin	Dodge	McLeansville	NC	Out of State	64	Salmonella Norwich	TDTX01.0001	
16	AC17001999	Peter	Stedman		TN	Sevier	0	Salmonella Oramburg	JJXX01.0191	
17	AC17002002	Virgil	Downs	Knoxville	TN	Knox	10	Salmonella Typhimurium	JJPX01.1197	
18	AC17002007	Mary	Dup	Rutledge	TN	Knox	0	Salmonella Typhimurium	JJPX01.1048	
19	AC17002005	Bob	Pan	Bristol	TN	Sullivan	2	Salmonella Typhimurium	JJPX01.0038	
20	AC17001996	Natalie	Hartley	Sevierville	TN	Sevier	59	Salmonella Uganda		
21	AC17001945	Jason	Dup	Knoxville	TN	Knox	1	Salmonella subspecies I 4-5-12 b	JJXX01.0028	

e. The Frequency Analysis Report

- i. Under Report, select Frequency Analysis from the drop-down menu.



- ii. Choosing a date range- Similar to the cluster report, the default settings provide all results reported in the past 30-days starting with today's date. Please note that the beginning date has no bearing on the frequency parameters, rather it determines how many results will be included in the report.
 - 1) To view frequencies for today's results, run the report as is
 - 2) To view frequencies for results in a specified date range, uncheck the box and input desired date(s).
- iii. Once you have entered the parameters, click the OK button to see the report.



- iv. The Frequency Analysis will be displayed in a scrolling window for review. The window can scroll vertically and on a smaller monitor can scroll horizontally as well.

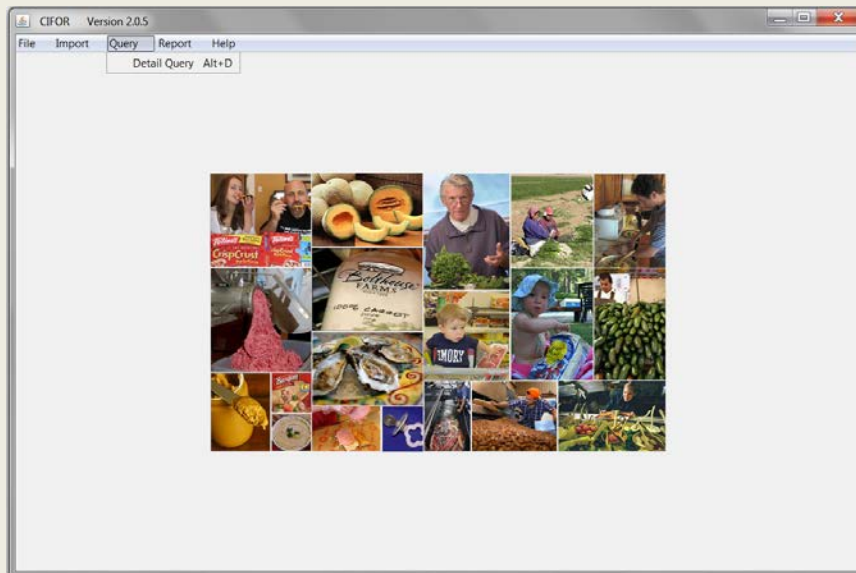
The screenshot shows the 'Frequency Analysis All Reports' window. It displays a table with columns for Organism, CDC Primary Enzyme Pattern, CDC Secondary Enzyme Pattern, Other Result, and monthly/yearly counts from December MTD to 2007. The table lists various organisms like Aeromonas hydrophila complex, Campylobacter coli, and Campylobacter jejuni, along with their respective enzyme patterns and results. The bottom of the window includes 'Print Options' and a 'Print' button.

Organism	CDC Primary Enzyme Pattern	CDC Secondary Enzyme Pattern	Other Result	December MTD	November	October	2011 YTD	2010	2009	2008	2007
Aeromonas hydrophila complex				5	6	2	13				
Campylobacter coli					2		2				
Campylobacter jejuni				3	6	2	11				
Campylobacter species					2		2				
E.coli O157:H7			Str 1&2 positive	1	2		3				
E.coli O157:H7			Str 2 positive	1			1				
E.coli O157:H7			Str negative				1				
E.coli O157:H7	EXH01.0125	EXH01.0579	Str 2 positive		1		1				
E.coli O157:H7	EXH01.0134	EXH01.0742	Str 2 positive		1		1				
E.coli O157:H7	EXH01.0124	EXH01.0536	Str 2 positive				2				
E.coli O157:H7	EXH01.0128	EXH01.0107	Str 1&2 positive				1				
E.coli O157:H7	EXH01.0152	EXH01.3177	Str 1&2 positive		2		2				
E.coli O157:H7	EXH01.1111	EXH01.2012	Str 2 positive				1				
E.coli O157:H7	EXH01.2150	EXH01.1168	Str 1&2 positive				1				
E.coli O157:H7	EXH01.2194	EXH01.0071	Str 2 positive				1				
E.coli O157:H7	EXH01.3866	EXH01.3807	Str 1&2 positive				1				
E.coli O157:H7	EXH01.4160	EXH01.1608	Str 1&2 positive				2				
E.coli O157:H7	EXH01.4792	EXH01.3884	Str 2 positive				1				
E.coli non-O157			Str 1 positive	1		1	19				
E.coli non-O157			Str 1&2 positive				1				
E.coli non-O157	EXH01.2117	EXH01.3883	Str negative				1				
E.coli non-O157	EXH01.0107	EXH01.8351	Str 1 positive				1				
E.coli non-O157	EXH01.0569		Str 1 positive				1				
Escherichia coli				2	2		6				
Salmonella Agona	JAB01.0089						1				
Salmonella Anatum				1			1				
Salmonella Enteritidis					1		1				

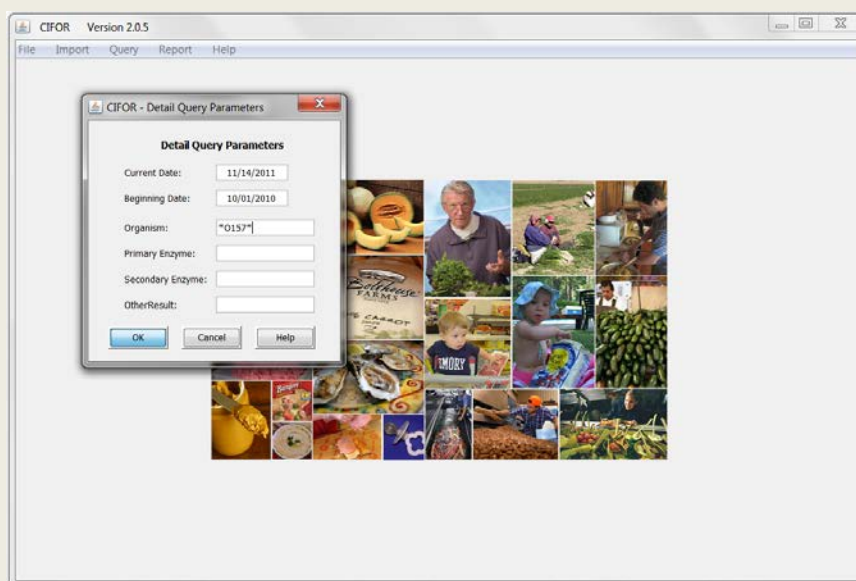
- v. The Frequency Analysis Report provides historical comparison of case results within three-month and five-year windows.
- vi. Frequencies are presented for each result arranged in order by
- 1) Organism only
 - 2) Organism and CDC/ Local Primary Enzyme Pattern
 - 3) Organism, CDC/Local Primary Enzyme Pattern and CDC/Local Secondary Enzyme Pattern
 - 4) Organism, CDC/Local Primary Enzyme Pattern , CDC/ Local Secondary Enzyme Pattern and Other Result
- vii. The frequency report should be run daily or as often as needed to closely monitor the frequency of recently reported results.

f. The Detail Query Report

- i. While on the main page, click on Query on the menu bar top left.
- ii. Select Detail Query.



- iii. You will see a parameter window with Current and Beginning Date fields as well as fields for Organism, Primary Enzyme, Secondary Enzyme, or Other Result.
- iv. As with the Cluster and Frequency Analysis Reports, Current Date defaults to today's date. Input the selected date(s).
- v. Enter a full or partial description of the data you want to filter, using an asterisk (*) as the wildcard character. For instance, if you want to see all E. coli O157 results within a specified timeframe, enter "*O157" in the Organism field. Leaving the filter fields blank will show all patient results within the selected date range.



- vi. The Detail Query report can be printed by clicking on the Print button on the bottom of the report window. Select Properties on the printer window to change the printing properties and margins.

CIFOR - Detail Query

Current Date: 11/14/2011
Beginning Date: 10/01/2010

Detail Query

Accession No.	Organism	Primary Enzyme Pattern	Secondary Enzyme Pattern	Other Result	Date Collected	Date Received	Date Reported
K11E000123	E.coli O157:H7			Stx 1&2 positive	2011-07-16	2011-07-19	2011-07-24
K11E000062	E.coli O157:H7			Stx 1&2 positive	2011-05-04	2011-05-09	2011-05-14
K11E000061	E.coli O157:H7			Stx 1&2 positive	2011-05-04	2011-05-06	2011-05-12
K11E000007	E.coli O157:H7			Stx 1&2 positive	2011-01-19	2011-01-24	2011-01-29
K11E000107	E.coli O157:H7			Stx 2 positive	2011-06-12	2011-06-24	2011-06-29
K11E000087	E.coli O157:H7			Stx 2 positive	2011-06-06	2011-06-10	2011-06-15
N11E000636	E.coli O157:H7			Stx 2 positive	2011-06-04	2011-06-09	2011-06-14
N11E000637	E.coli O157:H7			Stx 2 positive	2011-06-04	2011-06-09	2011-06-14
K11E000080	E.coli O157:H7			Stx 2 positive	2011-06-05	2011-06-08	2011-06-13
N11E001799	E.coli O157:H7			Stx negative	2011-10-18	2011-10-18	2011-11-01
N11E000970	E.coli O157:H7			Stx negative	2011-07-20	2011-07-21	2011-08-01
K11E000030	E.coli O157:H7			Stx negative	2011-03-09	2011-03-10	2011-03-25
N11E000225	E.coli O157:H7			Stx negative	2011-03-09	2011-03-09	2011-03-15
N11E000975	E.coli O157:H7	EXN001.0008	EXHA26.1168	Stx 1&2 positive	2011-07-18	2011-07-22	2011-07-27
N11E000976	E.coli O157:H7	EXN001.0008	EXHA26.1168	Stx 1&2 positive	2011-07-17	2011-07-22	2011-07-27
N11E000008	E.coli O157:H7	EXN001.0033	EXHA26.2750	Stx 1&2 positive	2011-01-01	2011-01-05	2011-01-12
N11E001265	E.coli O157:H7	EXN001.0047	EXHA26.0071	Stx 2 positive	2011-08-16	2011-08-17	2011-08-22
N11E001015	E.coli O157:H7	EXN001.0074	EXHA26.0555	Stx 1&2 positive	2011-07-17	2011-07-27	2011-08-01
N11E001928	E.coli O157:H7	EXN001.0125	EXHA26.0570	Stx 2 positive	2011-10-23	2011-11-01	2011-11-06
N11E001672	E.coli O157:H7	EXN001.0125	EXHA26.0570	Stx 2 positive	2011-09-20	2011-10-03	2011-10-08
N11E001659	E.coli O157:H7	EXN001.0125	EXHA26.0570	Stx 2 positive	2011-09-14	2011-09-30	2011-10-05
N11E001241	E.coli O157:H7	EXN001.0125	EXHA26.0570	Stx 2 positive	2011-09-12	2011-09-16	2011-09-21
N11E001108	E.coli O157:H7	EXN001.0125	EXHA26.0570	Stx 2 positive	2011-07-27	2011-08-04	2011-08-09
N11E000996	E.coli O157:H7	EXN001.0125	EXHA26.0570	Stx 2 positive	2011-07-21	2011-07-25	2011-07-30

Print Options

☒ Header: Detail Query

☒ Footer: Date Range From: 10/01/2010 To: 11/14/2011 Report Page (0)

Print Excel

- vii. Should further analysis be desired, the user can export the report into Excel. Click on the Excel button on the bottom of the report window. The spreadsheet will be created and then saved in the C:\CIFOR\Excel directory on your PC. The Excel spreadsheet data can be manipulated in any way without affecting the CIFOR database.

g. Geospatial Mapping

- i. There are a number of options available to produce geospatial maps to help visualize the location and size of clusters. A good resource outlining several options is the Tennessee Geocoding Cookbook which can be found on the CIFOR Clearinghouse site at www.cifor.us.
- ii. A simple mapping option described below is available to enable creation of Bing maps to provide visual representation of selected results. An Excel addin from MapCite (www.mapcite.com) can be purchased (a 30-day free trial license is also available or an annual license is available for \$99.00) and installed in Excel. Using MapCite, any Excel worksheet with the necessary geographic locators (Street, City, State, and ZIP Code) can produce a Bing map. The following steps describe how to create an Excel worksheet and then use MapCite to produce a map of the desired result records.
- iii. From the CIFOR main screen, select Map Results from the Menu bar and then click on the Mapping Query option.



- iv. A Parameter screen will be displayed to allow the User to enter the criteria to select the results records to be displayed on a map. In the example below we have entered a date range to get only the result records within that date range and also entered wildcard characters "*" around "Campy" in the Organism field. This will produce a report with all results within the date range and with the word "Campy" anywhere in the Organism name.



- v. This will produce a Mapping Query report, shown below, which lists all of the Result Records that meet the selection criteria entered into the Parameter Screen.

CIFOR - Detail Query

Current Date: 11/14/2013
Beginning Date: 10/15/2010

Mapping Query

Accession No.	Organism	CDC Primary Enzyme Pat...	CDC Secondary Enzyme P...	Other Result	Street Address	City	County	State	Zip Code	Zip+4	Date Reported
AC1500132	Campylobacter coli				34221 Farview School Rd	Priny Flat	Tulcan	TN	27686		2011-08-12
AC1500138	Campylobacter coli				53680 Sherbrook Drive	McNair	Out of State	NC	27301		2011-08-12
AC1500125	Campylobacter coli				3467 Baker St	Bristol	Knox	TN	27620		2011-03-25
AC1500124	Campylobacter coli				3670 Emmett Rd.	Bristol	Tulcan	TN	27620		2011-03-25
AC1700280	Campylobacter jejuni				1899 Michael Drive	Johnson O.	Washington	TN	27604		2011-12-09
AC17002121	Campylobacter jejuni				1326 Walnut Lane	Gulpepper	Out of State	VA	22701		2011-12-09
AC1700262	Campylobacter jejuni				5335 Sioux Lane	Knoxville	Knox	TN	27914		2011-12-02
AC1700287	Campylobacter jejuni				83227 Aaron Lane	Knoxville	Knox	TN	27920		2011-11-28
AC1700193	Campylobacter jejuni				5566 Silver Grove Rd	BUFF City	Tulcan	TN	27616		2011-11-14
AC1700197	Campylobacter jejuni				202123 Washington Ave.	Knoxville	Knox	TN	27917		2011-11-14
AC1500181	Campylobacter jejuni				202123 Washington Ave.	Knoxville	Knox	TN	27917		2011-11-08
AC1500108	Campylobacter jejuni				2468 New Gentry Rd.	Rutledge	Knox	TN	37861		2011-11-04
AC1500174	Campylobacter jejuni				53680 Sherbrook Drive	McNair	Out of State	NC	27301		2011-11-02
AC1500170	Campylobacter jejuni				83225 Aaron Lane	Sevier	TN				2011-10-27
AC1500171	Campylobacter jejuni				1326 Walnut Lane	Gulpepper	Out of State	VA	22701		2011-10-18
AC1500167	Campylobacter jejuni				1899 Michael Drive	Johnson O.	Washington	TN	27604		2011-09-22
AC1500129	Campylobacter jejuni				3467 Baker St	Bristol	Knox	TN	27620		2011-09-13
AC1500133	Campylobacter jejuni				2018 Beachwood Drive	Knoxville	Knox	TN	27920		2011-08-30
AC1500148	Campylobacter jejuni				6868 Sam Tiley Rd.	Knoxville	Knox	TN	27918		2011-08-30
AC1500118	Campylobacter jejuni				5335 Sioux Lane	Knoxville	Knox	TN	27914		2011-08-03
AC1500114	Campylobacter jejuni				202123 Washington Ave.	Knoxville	Knox	TN	27917		2011-07-13
AC1500103	Campylobacter jejuni				53680 Sherbrook Drive	McNair	Out of State	NC	27301		2011-06-28
AC1500092	Campylobacter jejuni				1326 Walnut Lane	Gulpepper	Out of State	VA	22701		2011-06-22
AC1500091	Campylobacter jejuni				3421 Foster Rd.	Lynch CE	Loudon	TN	37771		2011-06-22

Print Options

☒ Header: Mapping Query

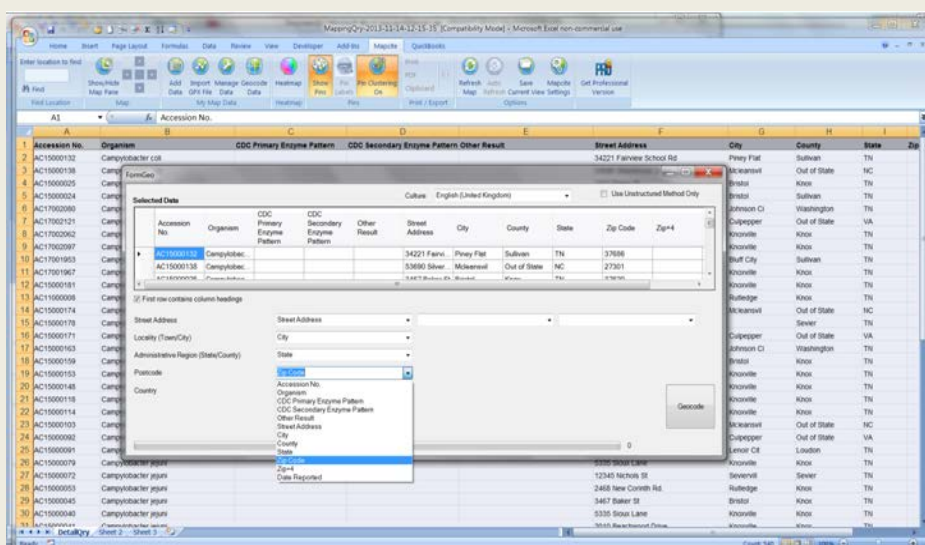
☒ Footer: Date Range From: 10/15/2010 To: 11/14/2013 Report Page (6)

Print Excel

- vi. From the Mapping Query report, the user can click on the Excel Button on the bottom of the screen. This will produce an Excel Worksheet with the same column headings and data show on the Mapping Query Report.

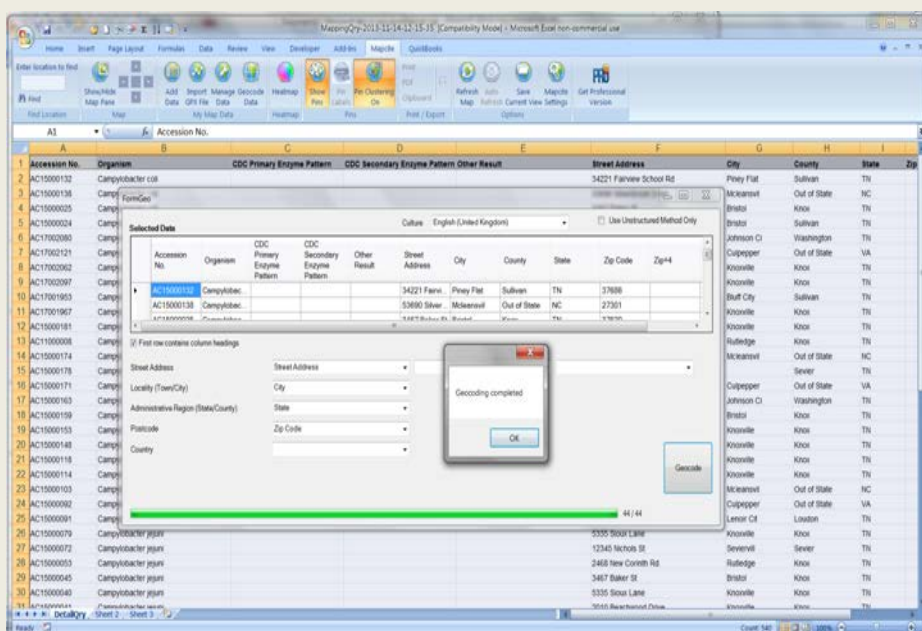
Accession No.	Organism	CDC Primary Enzyme Pattern	CDC Secondary Enzyme Pattern	Other Result	Street Address	City	County	State	Zip
AC15000132	Campylobacter coli				34221 Fairview School Rd	Philly Flat	Sullivan	TN	
AC15000138	Campylobacter coli				53600 Silverbrook Drive	McKeanville	Out of State	NC	
AC15000025	Campylobacter coli				3467 Baker St	Bristol	Knox	TN	
AC15000024	Campylobacter coli				3670 Emerald Rd	Bristol	Sullivan	TN	
AC15000080	Campylobacter jejuni				1990 Michael Drive	Johnson CI	Washington	TN	
AC150002121	Campylobacter jejuni				1526 Walnut Lane	Culpepper	Out of State	VA	
AC150002062	Campylobacter jejuni				5355 Sioux Lane	Knoxville	Knox	TN	
AC150002087	Campylobacter jejuni				83227 Aaron Lane	Knoxville	Knox	TN	
AC150001963	Campylobacter jejuni				5566 Silver Grove Rd	Staff City	Sullivan	TN	
AC150001967	Campylobacter jejuni				202123 Washington Ave	Knoxville	Knox	TN	
AC15000181	Campylobacter jejuni				202123 Washington Ave	Knoxville	Knox	TN	
AC15000008	Campylobacter jejuni				2468 New Cornith Rd	Rutledge	Knox	TN	
AC15000174	Campylobacter jejuni				53600 Silverbrook Drive	McKeanville	Out of State	NC	
AC15000178	Campylobacter jejuni				83227 Aaron Lane	Culpepper	Out of State	VA	
AC15000171	Campylobacter jejuni				1526 Walnut Lane	Culpepper	Out of State	VA	
AC15000163	Campylobacter jejuni				1990 Michael Drive	Johnson CI	Washington	TN	
AC15000159	Campylobacter jejuni				3467 Baker St	Bristol	Knox	TN	
AC15000153	Campylobacter jejuni				2010 Beachwood Drive	Knoxville	Knox	TN	
AC15000148	Campylobacter jejuni				6965 Sam Tiley Rd	Knoxville	Knox	TN	
AC15000118	Campylobacter jejuni				5355 Sioux Lane	Knoxville	Knox	TN	
AC15000114	Campylobacter jejuni				202123 Washington Ave	Knoxville	Knox	TN	
AC15000103	Campylobacter jejuni				53600 Silverbrook Drive	McKeanville	Out of State	NC	
AC15000092	Campylobacter jejuni				1526 Walnut Lane	Culpepper	Out of State	VA	
AC15000091	Campylobacter jejuni				5421 Foster Rd	Lenoir CI	Loudon	TN	
AC15000079	Campylobacter jejuni				5355 Sioux Lane	Knoxville	Knox	TN	
AC15000072	Campylobacter jejuni				12545 Nichols St	Sevierville	Sevier	TN	
AC15000053	Campylobacter jejuni				2468 New Cornith Rd	Rutledge	Knox	TN	
AC15000045	Campylobacter jejuni				3467 Baker St	Bristol	Knox	TN	
AC15000040	Campylobacter jejuni				5355 Sioux Lane	Knoxville	Knox	TN	
AC15000008	Campylobacter coli				53600 Silverbrook Drive	McKeanville	Out of State	NC	

- vii. With the MapCite addin for Excel the User can click on the MapCite tab located in the Excel Menu Bar. This will display a new Menu Ribbon showing the options available in MapCite.
- viii. The next step in creating a Bing Map is to first Geocode the data in the worksheet. The User can do this by highlighting all of the columns and rows (including the header row) that should be shown a map. After highlighting the data, click the “Geocode Data” button in the MapCite Menu Ribbon. This will display a parameter screen where dropdown boxes are available to indicate which field in the worksheet represents the Street Address, Locality (Town/City), Administrative Region (State/County), and the PostCode. These fields are show on the screen below. Once the fields have been matched in the dropdown boxes, click the “Geocode” button on the parameter screen. This will perform the GeoCode step and add columns to the right side of the Excel Worksheet for Latitude and Longitude.

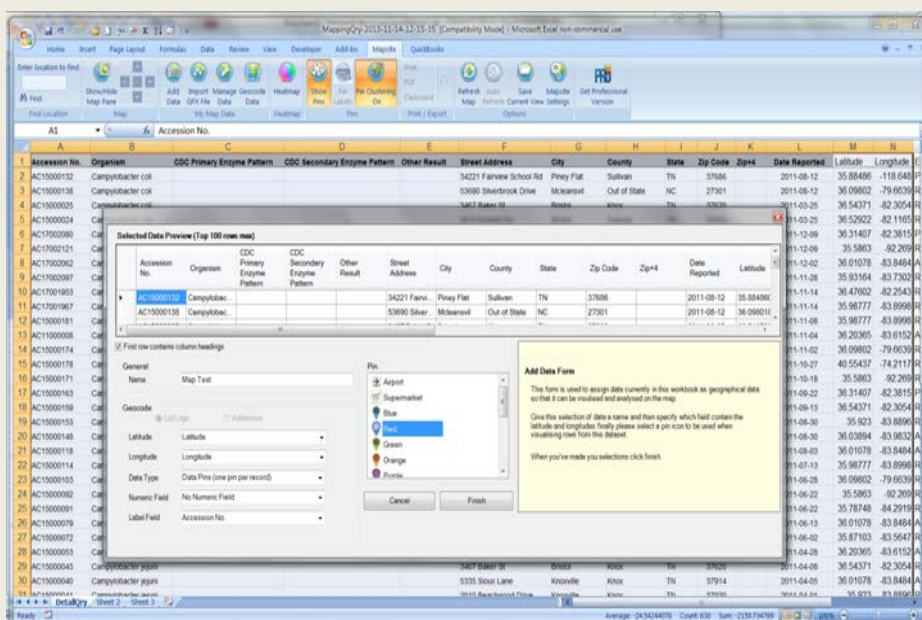


- ix. Once the Geocode step is completed a popup window will be displayed to indicate completion of the Geocoding step. Click on the “OK” button.

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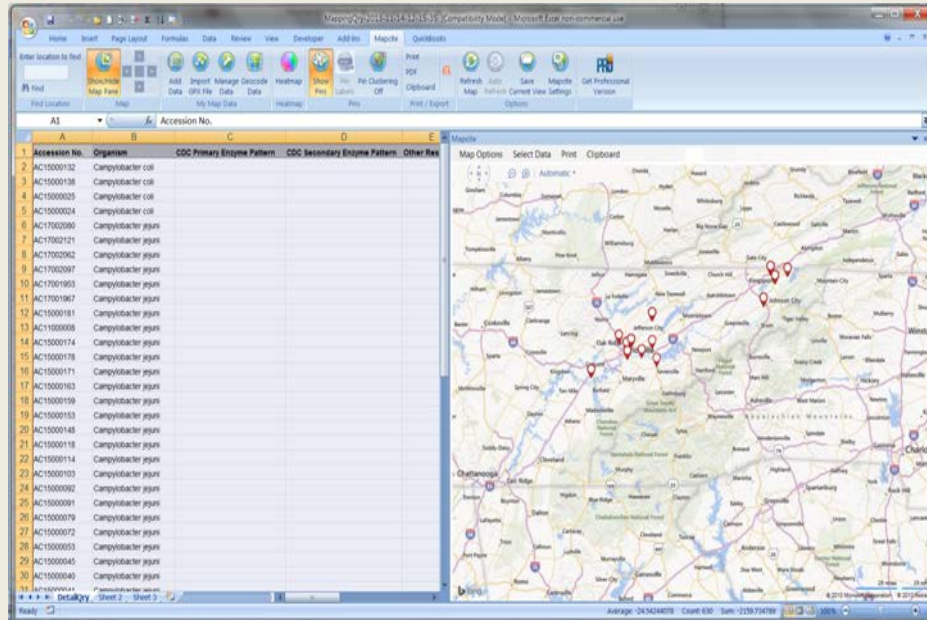


- x. The next step is to again select the data for the map by highlighting all of the columns and rows (including the header row) to be shown a map. Then click the “Add Data” button in the MapCite menu ribbon. This will display another parameter window. Enter the name for the map in the General Name field, and then use the dropdown boxes to select the Latitude and Longitude fields from the choices in the dropdown boxes. Leave the next two fields as they are displayed and then use the last dropdown box called “Label Field” to select a field to be used for labels on the map. The last step is to select a Pin choice for the map. Once these steps have been completed, click the “Finish” button.

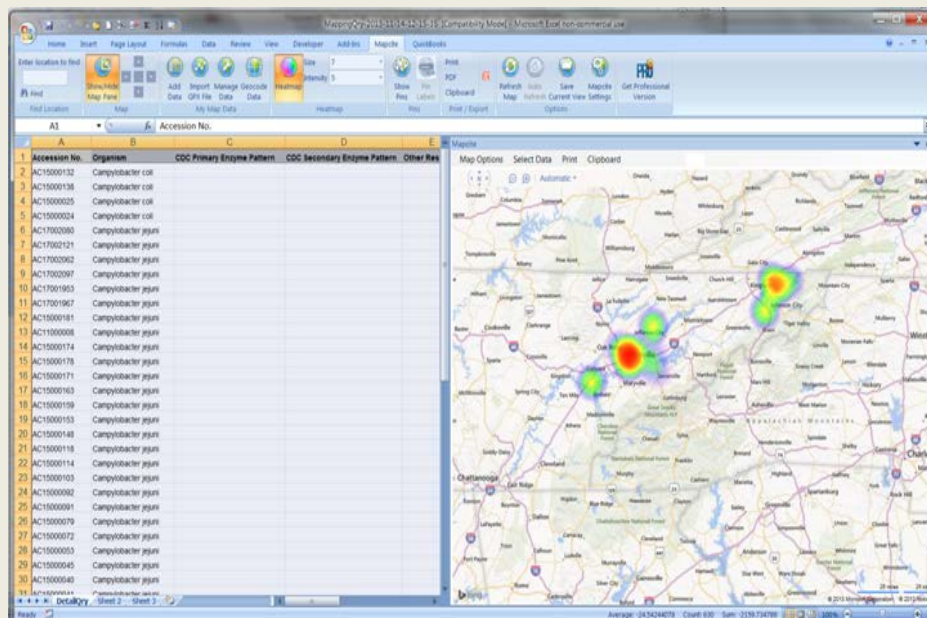


- xi. A Map of the selected data from the worksheet is now displayed on the right side of the Excel worksheet. The user can enlarge this window and also zoom in like you would on any Bing map. The initial default is to show Pin Clustering On, this button should be clicked off to show the individual pins. The map can be moved on the screen or zoomed to display

the map as desired. The map can also be copied to the clipboard and pasted into a Word document or any other document desired for distribution or presentation.



- xii. One final option available to display the map is to click on the HeatMap button to display the map with colored highlight areas instead of the pins shown previously.



5. Obtaining the Software Source Code

- a. The CIFOR Lab-Epi Integrated Reporting Software is open-source software. It is freely available to any person who wishes to study, change and distribute the software to anyone and for any purpose.
- b. The source code is located on GitHub at www.github.com under the search term “gjones09/CIFOR”.

6. Reporting Errors and/or Suggesting Future Enhancements

- a. At this time errors, suggested enhancements and other issues can be reported on GitHub at www.github.com.
 - i. Create a free account, log in, and search for “gjones09/CIFOR”.
 - 1) On the CIFOR page, click on the information symbol ⓘ on the right-hand tab.
 - 2) To report an issue (including an error with the software, suggested enhancement, request for assistance, etc.), click on the green “New Issue” button in the upper right-hand corner of the page.
- b. Although one does not exist at this time, a user community is being considered where users could post questions and discuss aspects of the database, e.g. uses, additional analyses, etc. The community would be set up in a public forum such as phConnect. Please stay tuned!
- c. If you have any questions regarding the software please contact Kirsten Larson (APHL) at Kirsten.larson@aphl.org. If you have any technical questions regarding the software please contact Gary Jones at gary.jones09@gmail.com.

This software was supported under Cooperative Agreement# U60HM000803 between the Association of Public Health Laboratories and Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of APHL or CDC.