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**FIA Biosum**

**Bioregional Inventory Originated**

**Simulation Under Management**

**Installation Guide**

**For Version 5.8.6, released on 29 March 2019**

**Introduction**

This guide details the steps required to install the FIA BioSum software on your Windows computer for the first time—what we call a “full installation”. Instructions for upgrading from a previous version of BioSum are provided in an [Appendix](#_Appendix:_How_to) at the end of this guide. Best results are likely to be obtained implementing the BioSum installation from an administrator account or an account with administrative privileges. That way, the application, and supporting software services such as ORACLE Express Edition, will be available via any user account on the computer. It is also important that BioSum “projects”, the datasets assembled and analyzed during the BioSum workflow, be in “trusted locations” as defined in the MS Access configuration to eliminate write protection barriers in a project’s database.

The full installation can be initiated from FIA\_BIOSUM\_SETUP.exe, a self-extracting WINZIP file that extracts, by default, to the c:\fia\_biosum\setup folder. After running the self-extraction, there are five essential tasks required to complete a BioSum installation:

1. Install Oracle 11g Express Edition (XE)
2. Install FIADB Oracle Schema.
3. Install R, if not already installed on the computer (version 3.4 or better)
4. Install RODBC
5. Install FIA Biosum Manager—the analyst-friendly software that manages workflow associated with the many data manipulation and analysis procedures in a BioSum project.

If Oracle 11g XE (11.2.0) has already been installed via procedures consistent with those specified in this guide, there is no need to reinstall this component. Oracle 11g documentation is available in c:\ fia\_biosum\setup\oracle11g\_xe\oracle\_11g\_setup\_instructions.pdf after self-extraction of FIA\_BIOSUM\_SETUP.

**Software Requirements**

For BioSum to install and function at all, requirements 1-3 must already be met. Requirements 4 and 5 can be met following installation.

1. Microsoft Windows 7 Professional, Enterprise, or Ultimate editions, or Windows 10.
2. Microsoft Office 2013, which BioSum uses for data storage, but **must be** 32bit Version and include M.S. Access. Some users have run BioSum successfully under Office 2016 or 365; however, we only certify and fully support 2013 because Office 2016 risks the potential for unanticipated outcomes. If running Office 2016, it must be the 32-bit version (MS Office 64-bit is incompatible with BIOSUM) and the MS Office 2013 32-bit runtime library must also be installed (download via https://www.microsoft.com/en-us/download/details.aspx?id=39358 )
3. Microsoft .NET Framework 4.0.
4. ARCGIS 9.2 or better (Separate Installation; required only if assessing new facility locations or alternate transportation network assumptions that depart from defaults)
5. FVS Suppose v.2.02 or later (Separate Installation) <http://www.fs.fed.us/fmsc/fvs/software/complete.php>

**Setup Overview**

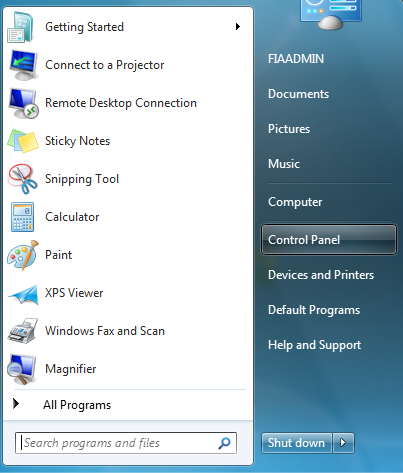
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| Faithfully following these instructions will get you up and running with BioSum soon. Because BioSum relies on ORACLE “packages” (code libraries) throughout the workflow, both ORACLE XE and the FIADB ORACLE “schema” that connects BioSum to the ORACLE packages **must** be installed for the software to function correctly. These installations require admin status on the computer. Unless BioSum will be used only to create FVS files for purposes unrelated to BIOSUM analysis, the R software and RODBC driver must also be installed to enable OPCOST to estimate costs of forest operations. Install the FIA BIOSUM MANAGER last.  If ORACLE XE, R (32 bit, version 3.4 or better) or RODBC are already installed on your computer, they do not need to be reinstalled. The zip file fia\_biosum\_setup.zip generally contains all the files needed for a full install. It is best to unzip this to the root directory of the C drive (specify C:\ as the location to install—it will create an fia\_biosum directory there). |

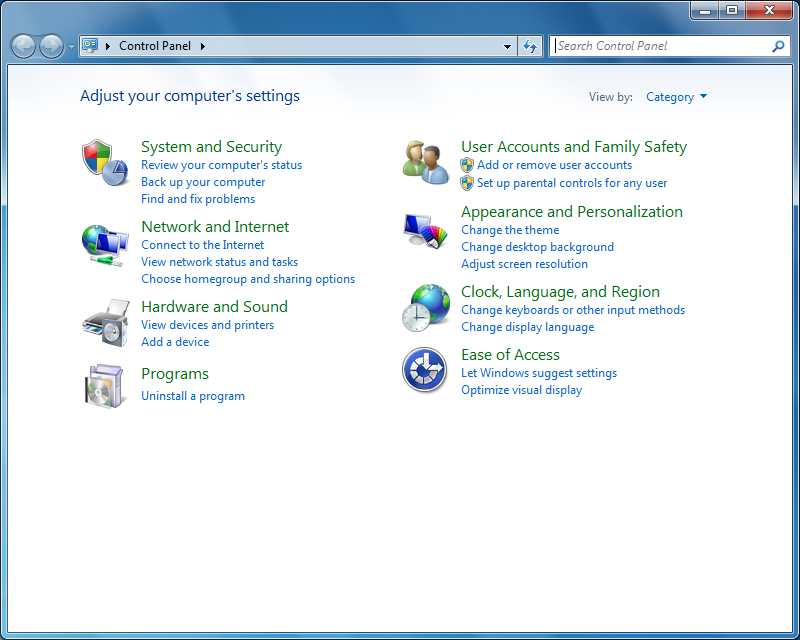
**ADMINISTRATOR PRIVILEGES OVERVIEW**

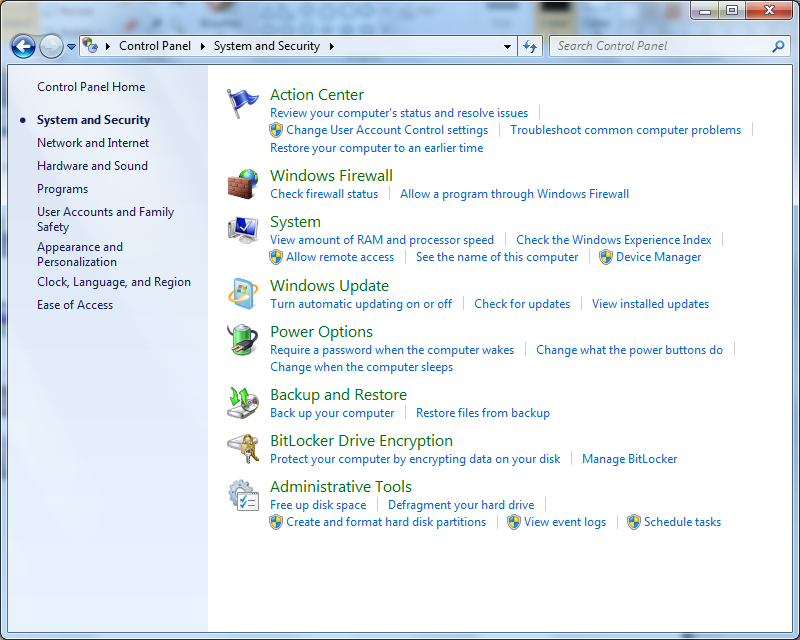
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| To install or uninstall the software (via the .MSI file) requires administrative privileges. If your computer has a Forest Service “imaged” operating system and you lack admin privileges then there are 2 options:  1. Right-click the install file and select <Install Elevated>, or  2. Shell a command prompt by selecting <Start> button <All Programs><Accessories> and then right-clicking <Command Prompt>menu option and selecting <Run Elevated>. From the elevated command prompt navigate to the folder location of the BIOSUM install files and run each of them from the elevated command prompt. This is the PREFERRED and only FULLY TESTED approach.  Forest Service (FS) users should note that these instructions do not yet account for FS computers that now only allow admin privileges using the Powerbroker software. <Install Elevated> and <Run Elevated> are Powerbroker options.  All other elements of the installation process are require execution as an admin level user, especially the Install\_FCS.bat, regedit, and odbcad32.exe steps.  If there is a possibility that different user accounts on the computer will run BioSum, it is strongly advised to define the ODBC entries as SYSTEM DSN and not USER DSN settings.  Actually running the BioSum software, once it has been successfully installed, does not require administrative privileges. By default, the BIOSUM software is installed for all user accounts.  If you intend to open and edit BIOSUM MS Access files, make sure that the directory location of the file is set as a trusted location in the Access software settings (under options, trust center settings).  The best way to make sure that installation components are installed under the admin privileges is to open a command window as admin and type the commands out in that command window. For example:  For step 10, you would follow these steps:  1. Start a command prompt with admin privileges.  2. In the command prompt type these commands:  2a. cd c:\ fia\_biosum\setup\Import\_FCS <enter key>  2b. Import\_FCS.bat <enter key>  When defining the ODBC entries make sure ODBCAD32.EXE is started from the c:\windows\SYSWOW64 folder, as an admin user. |

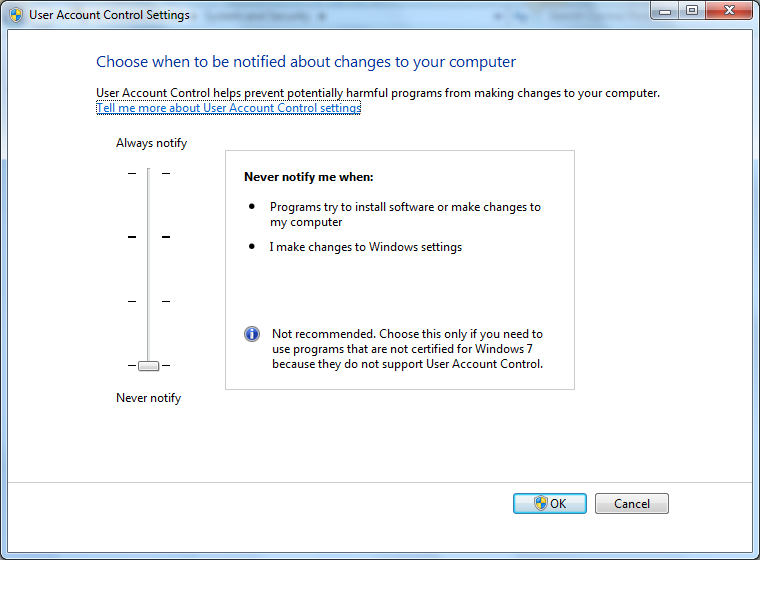
**Setup Instructions**

1. Login to your computer as an administrator.
2. We recommend turning off User Account Controls (UAC):.

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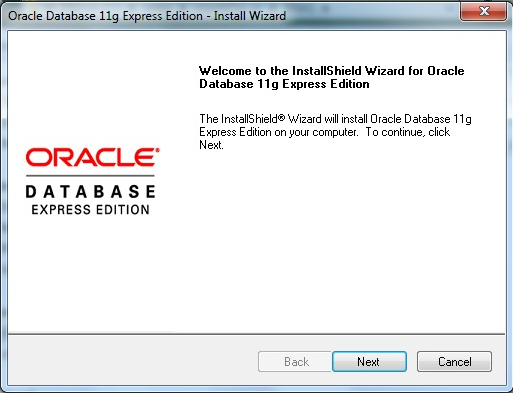
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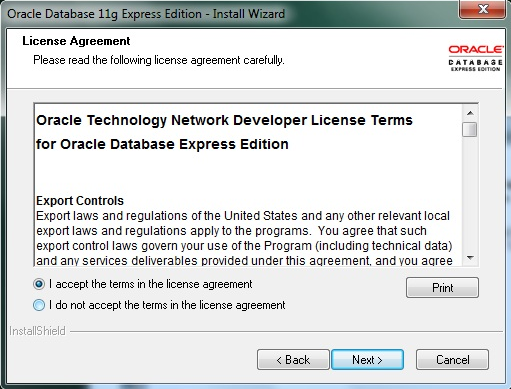
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**NOTE: Even though the position of the slider may already be located at the lowest level, it needs to be dragged up, and back down, to the lowest level to reinitialize the UAC settings. A computer reboot is required after changing UAC settings.**

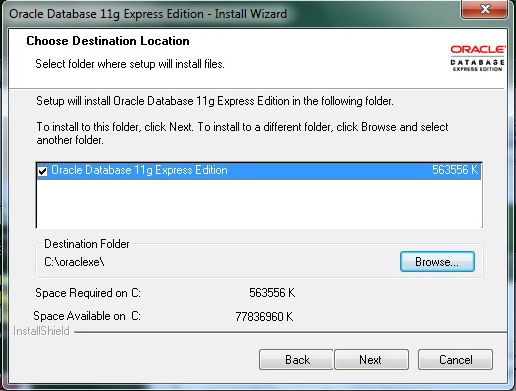
1. **INSTALL Oracle 11g XE:** If Oracle 11g XE is already installed then skip to item 10. As an administrator, open the file c:\ fia\_biosum\setup\oracle11g\_xe\DISK1\setup.exe and click <Next>.



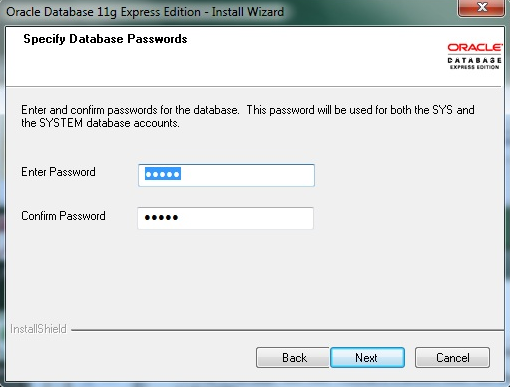
1. Check the “Accept terms” button and click <Next>.



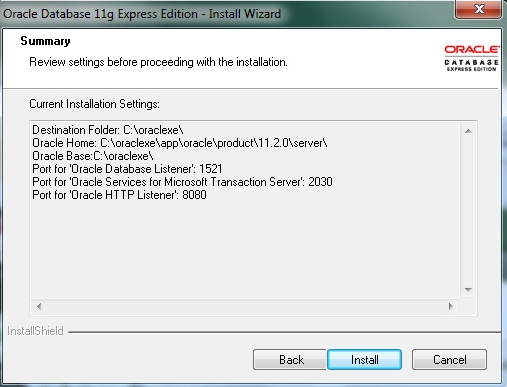
1. Accept the default destination folder and click <Next>.



1. Set the System Administrators password. Type the password **admin** and select <Next>.



1. Check the settings and proceed with the installation by selecting <Next>. NOTE: Port settings should read as follows: Oracle Database Listener – 1521; Oracle Services for Transaction Server – 2030; Oracle HTTP Listener – 8080.



1. If receiving these messages click <OK> and proceed with installation. Clear the error message below, if it appears, by clicking OK to ignore it. Then click <Finish> to complete the installation.

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1. **Install** **FIADB Oracle Schema:**
   1. Start the command prompt by clicking the <Start> button on the task bar, clicking the <All Programs>, <Accessories>, right-click <Command Prompt> menu option and select <Run as administrator> or <Run Elevated>.
   2. At the command prompt type **cd c:\ fia\_biosum\setup\Import\_FCS\_BioSum** and the <enter> key (case does not matter when typing these commands at the command line prompt).
   3. At the c:\fia\_biosum\setup\Import\_FCS> command prompt type **.\FCS\_BioSum\_Import.bat** and the <enter>.

**Note**

It is ESSENTIAL that all of the following files be in the Import\_FCS\_BioSum directory BEFORE running the FCS\_BioSum\_Import.bat file (as admin):

1. FCS\_BIOSUM.DMP (dated 3/29/2018)

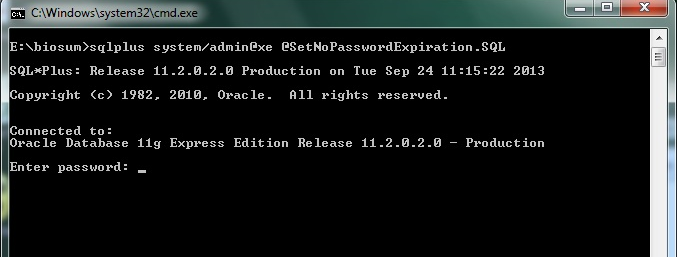
2. FCS\_BIOSUM\_impdp.DAT

3. FCS\_BIOSUM\_Import.bat

4. FCS\_BIOSUM\_SetNoPasswordExpiration.SQL

5. FCS\_BIOSUM\_TryDropUserCmd.SQL

If prompted for the password type in **fcs** (for this purpose, case matters—these are lower case letters) and press <enter>. (**IMPORTANT!** - the text will not appear and the cursor will not move. Don't type in any extraneous characters). See below.

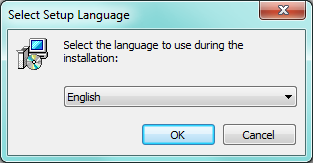


Many lines of processing will scroll up the screen; when finished, you may see a “3”. Press <enter>, then “quit” to exit the ORACLEXE environment.

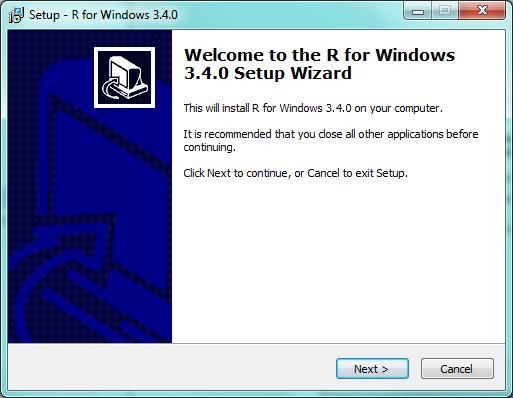
**Tips for troubleshooting the Oracle FCS Schema**

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| If a previous FCS schema is already installed on your computer or if the setup of the this schema failed, follow these steps:   1. Navigate to the C:\oraclexe\app\oracle\admin\XE\dpdump folder 2. Delete all files 3. Repeat step 9   If the FIA BIOSUM MANAGER application fails to connect to the Oracle FCS services, follow these steps:   1. Start a command prompt with <Run As Administrator>. 2. Open the **sqlnet.ora** file in a text editor (such as notepad). It is located in the folder: C:\oraclexe\app\oracle\product\11.2.0\server\network\ADMIN 3. Edit this file so that it reads as below   FROM  SQLNET.AUTHENTICATION\_SERVICES = (NTS)  TO  SQLNET.AUTHENTICATION\_SERVICES = (NONE)   1. Save the file. 2. Logout of the admin account on your computer, login with your regular userid and test |

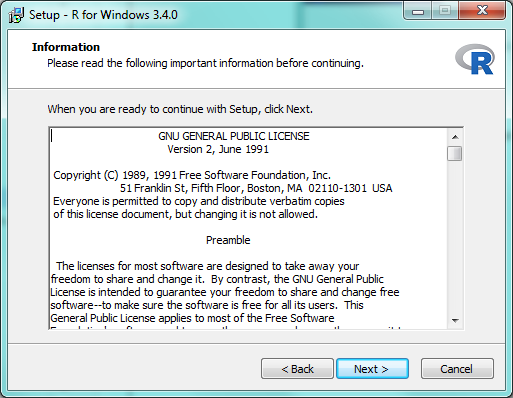
1. **Install R:** Navigate to the c:\fia\_biosum\setup\R folder and open the file R-3.4.0-win.exe and click <OK>. NOTE: If R is already installed then skip to step #19.



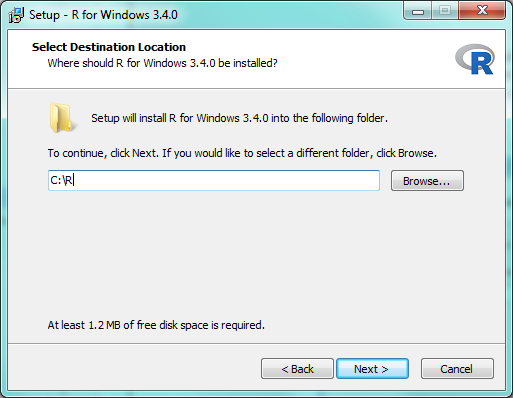
1. Click <Next>.



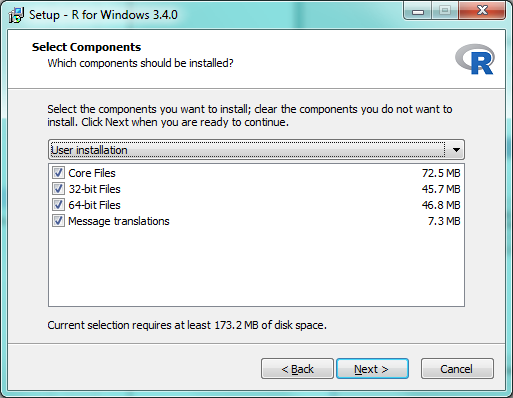
1. Click <Next>.



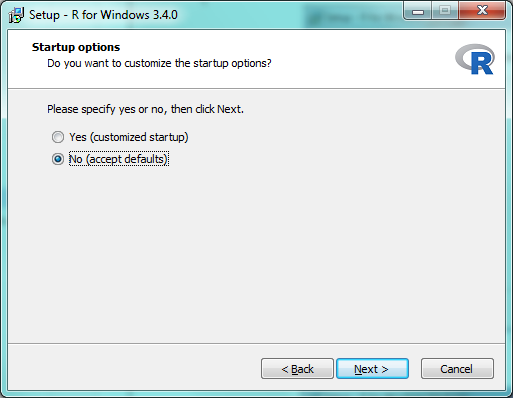
1. Choose the location to install the R software and click the <Next> button. By default, R will install the software in the <Program Files> folder. If you wish to install the R software in a different folder then click the <Browse> button and navigate to a folder. In the example below, R is being installed in the c:\R folder.



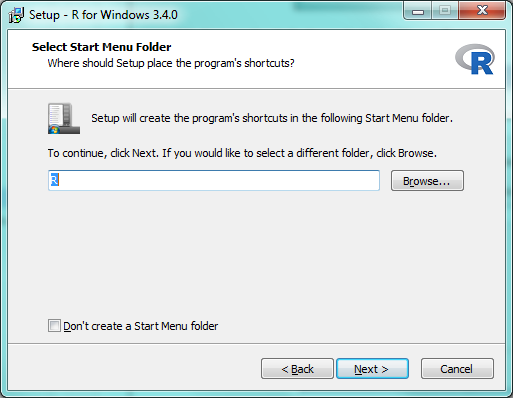
1. Accept the defaults and click <Next>.



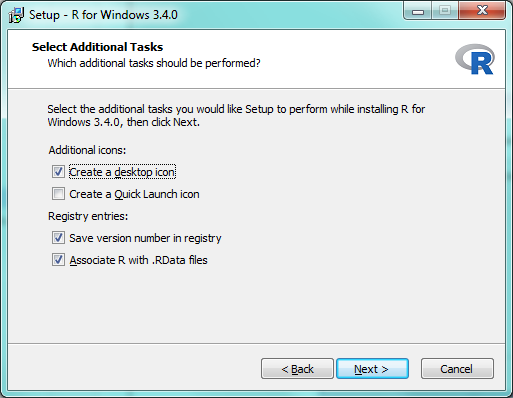
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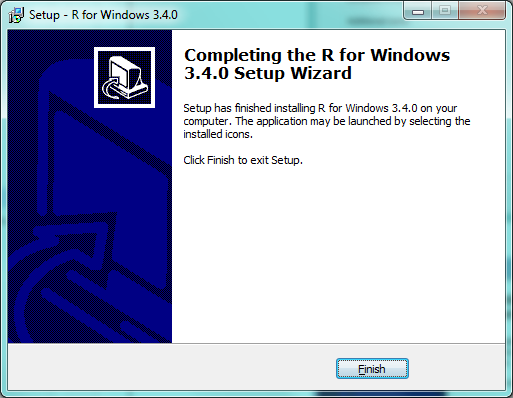
1. Accept the defaults and click <Next>.



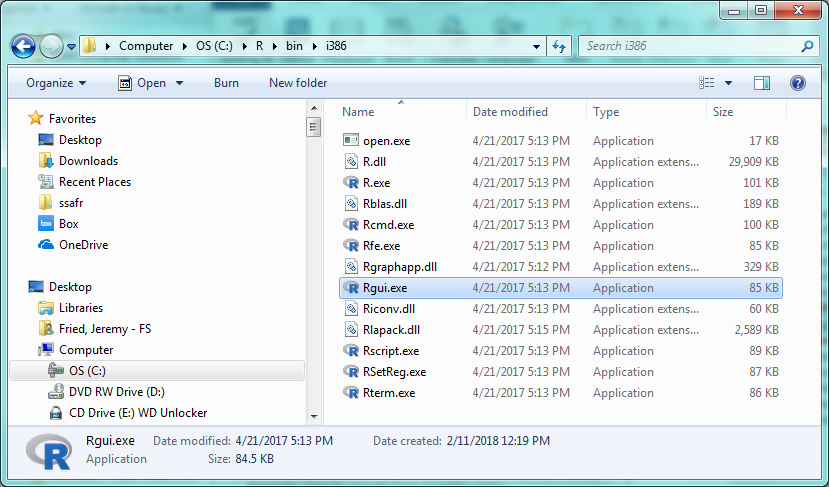
1. Accept the defaults and click <Next>.



1. Click <Finish>.



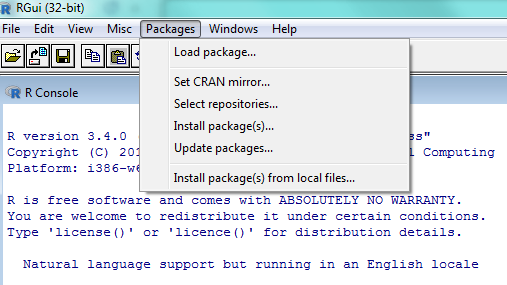
1. **Install RODBC:** If RODBC is already installed then skip to step #24. RODBC enables R to connect to MS Access tables using ODBC. Navigate to the folder containing the R i386 program called RGui.exe and open it. NOTE: An internet connection is required for the RODBC install.



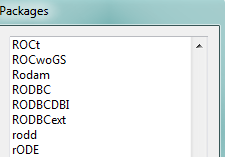
1. Click on <Packages> <Set CRAN mirror>, and choose a mirror location near you.

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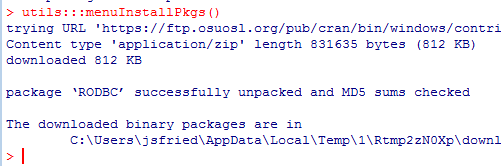
1. Then, click again on <Packages> but this time select <Install Packages>.



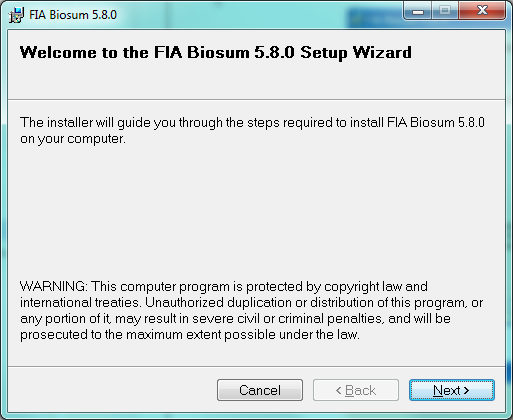
1. Select the <RODBC> package to download and install. Click <OK>.

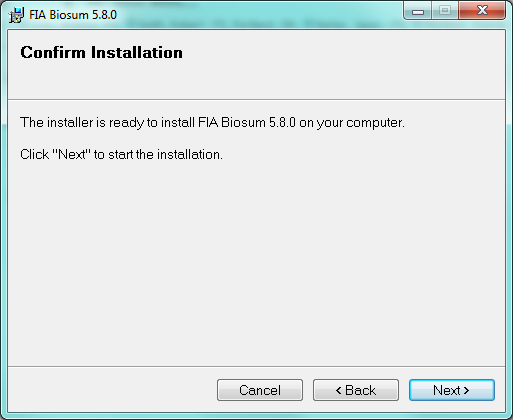


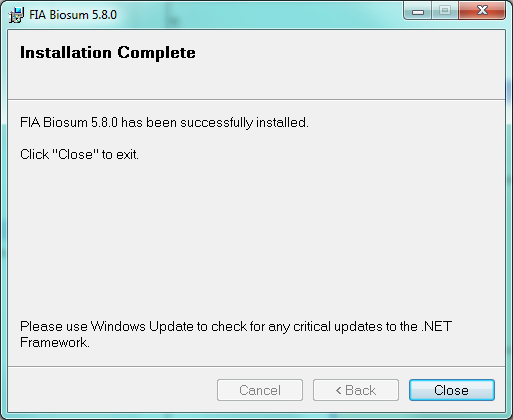
1. Check to see if successfully installed.



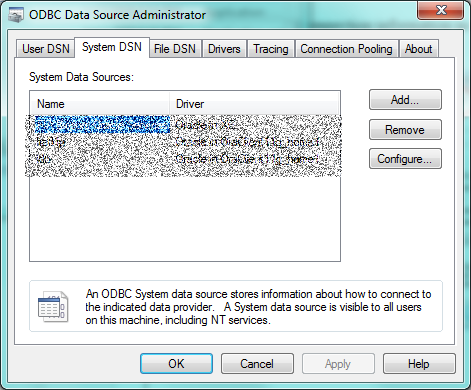
1. **Install FIA Biosum Manager**: Navigate to the c:\ fia\_biosum\setup\FIA Biosum Manager folder. Open the file ‘fia\_biosum\_setup\_*versionnumber*.msi via right click, Install. Click on <Next>.

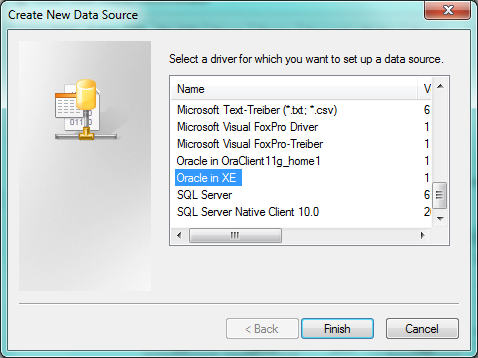
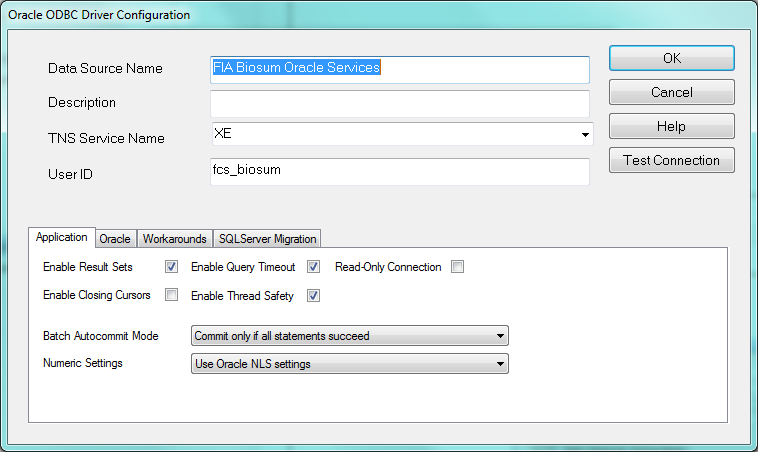
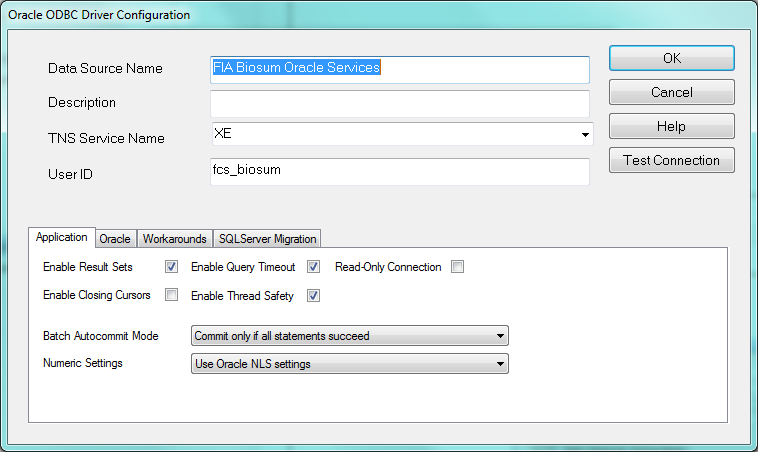
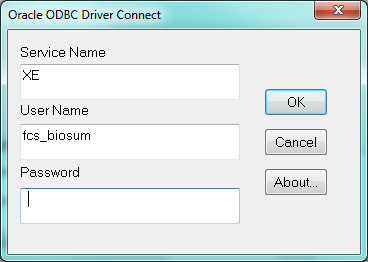
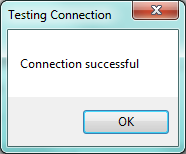






1. **Create ODBC connection:** In **Windows 7,** navigate to the **c:\windows\sysWOW64** folder and open the file **odbcad32.exe** as an administrator.
   1. Choose the System DSN tab, and select <Add> to initiate adding a data source.



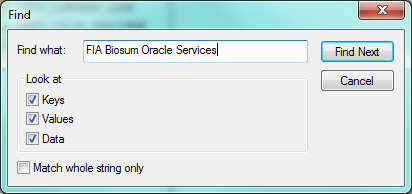
* 1. Select ORACLE in XE as the data source driver  
       
     
  2. Enter the connection information exactly as it appears below.  
      
  3. After the dialog is complete, click the <Test Connection> button to ensure that the service works as intended.  
     
  4. Enter TNS Service name: XE, User ID: fcs\_biosum and password: fcs, then click <OK>.  
     
  5. A “Connection Successful” result is validation of a working ORACLE connection.  
     

If the test connection fails, check to see if the Oracle XE services are running. In the task bar on the desktop, select <Start> right click <My Computer> and select <Manage>. On the computer management form select <Services and Applications><Services> and check to see if <OracleServiceXE> is started and <OracleXETNSListener> is started. To start either of the Oracle XE services, right-click on the service and select <Start>. Test the ODBC connection again. If the connection fails a second time then contact FIA BIOSUM support staff for assistance.

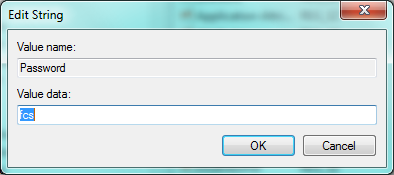
1. **ODBC Registry Edit:** Add the ODBC Oracle fcs password. Adding the fcs password to the registry will prevent the user from being prompted for the password each time BIOSUM requests access to the fcs->BIOSUM\_VOLUME table.

In the task bar on the desktop, select <Start>. Type in the text box ‘regedit’ and press <enter>.

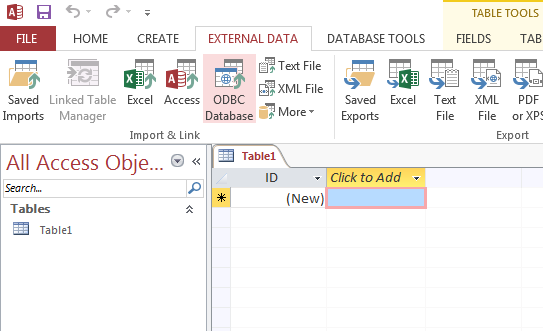
In the registry editor form, select <Edit><Find> and enter the search information displayed below and select <Find Next>.



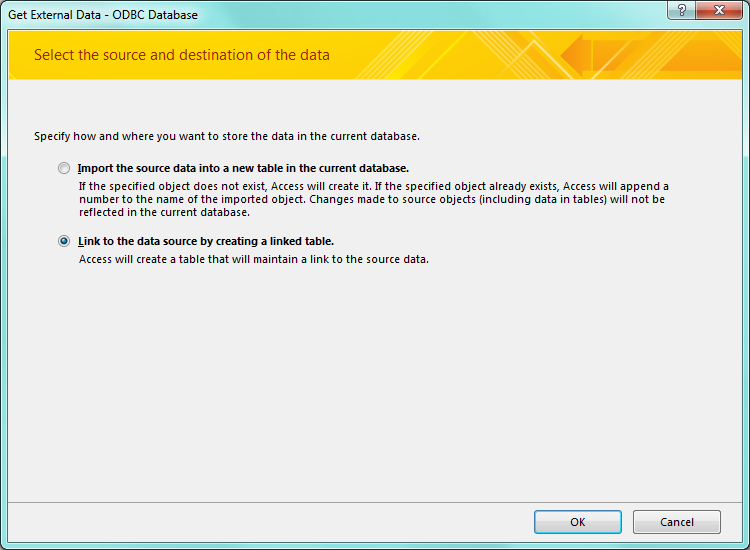
When the search finds the ODBC DSN string, double click on the <Password> value and in the text box type ‘fcs’ and click <OK>.

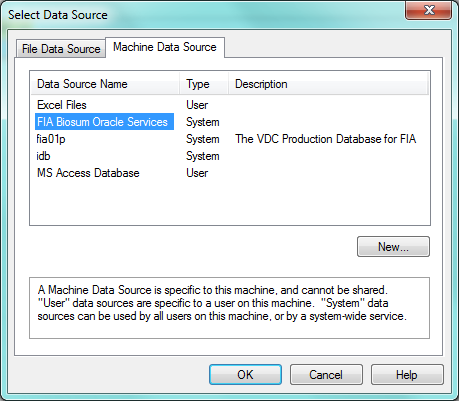
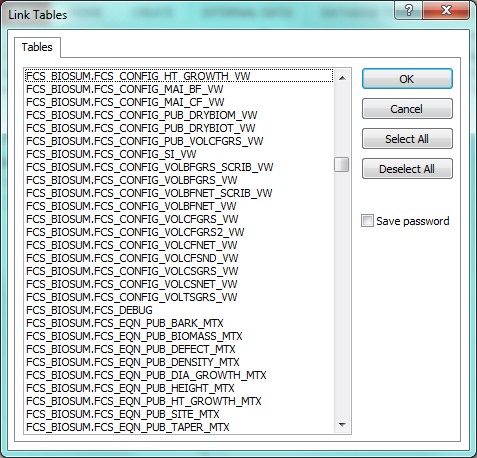


1. **Additional (optional) ODBC connection test:** 
   1. Open any MDB or ACCDB file, select the <External Data> tab and choose <ODBC Database>.



* 1. Select <Link to the data source by creating a linked table> and then click <OK>.



* 1. Select <Machine Data Source> tab, <FIA Biosum Oracle Services> and <OK>  
       
     
  2. If ODBC is successful then the FCS oracle schema should be listed in the tables list below. If there is an ODBC connection problem please contact Biosum support staff for assistance.  
       
     

# Appendix 1: Upgrading the BioSum software from an earlier version

**Upgrade Overview**

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| Most BioSum upgrades can be installed by simply installing the .msi file provided (in this case, fia\_biosum\_setup\_586.msi). This will install a new BioSum version, and that version will appear as a new menu entry under FIA BioSum in the Windows Start Menu. Old versions can be deleted later, if desired (via Control panel, Programs and Features).  However, some upgrades, such as 5.8.0, are so substantial that they also include changes to the FIADB ORACLE schema, so a new schema must also be loaded. Moreover, since version 5.7.6, backward compatibility has been maintained via the “stairstep model” such that a 5.7.6 project would have to be upgraded first to 5.7.7 (by opening the project in 5.7.7), then saved and BioSum closed, then a repeat of this process (open, save, close) in the same version (5.7.7 in this example) before opening the project in 5.7.8 (to upgrade it to that version), and so on. Opening a 5.7.6 project directly into 5.8.0 would lead to considerable manual effort in the way of copying and querying tables and databases to get the project working in 5.8.0—this is not advised. It is possible to see the last version of BioSum that was used to open a project by opening and reading the one line text file application.version in the project root directory. If you have pre-5.8.0 BioSum projects that will need to be upgraded, please consult the BioSum support staff for assistance and access to pre-5.8.0 versions of the software to make the stairstep journey.  If you DON’T have projects needing to be upgraded but DO have BioSum installed on your computer, follow steps 9, 24 and 25 and you should have a fully functional version of BioSum 5.8.0 ready to go. Remember to use an admin account (at least on a FS imaged computer—other environments have been less tested). It may be necessary to repeat Step 26 also, entering the fcs password in the registry. Admin privileges are required for this step also.  Finally, if you have an earlier build of release 5.8.6 installed, you will need to uninstall it before installing this build (February 22, 2019). |