

**Subject:** HOW TO Query SQL databases with Access

Microsoft Access is a common end-user tool for writing queries and reports. You can easily connect an Access MDB file to any SQL database I manage to do data-analysis.

When you establish a connection to a SQL database with Access, you use the External Data tools in Access to link the database through an ODBC Data Source to the relevant SQL server database. This connection technique can be used on multiple SQL databases simultaneously from the same Access MDB File, so you can actually build quite elaborate cross-database queries fairly quickly.

I control the following databases that you can use this technique with.

AirFacilities

DamPermits

ENB

FacilitiesFinancialManagement (AKA Unified PTS)

FocusOnFloods

GroundWaterInterference

IronPIG

PublicRecordTracking

RiversDMS

Rolodex

StreamAlts

WellDrillerReports (the Well Driller Reports area within the WS Inventory)

WWInventory

WWRegionalTracking

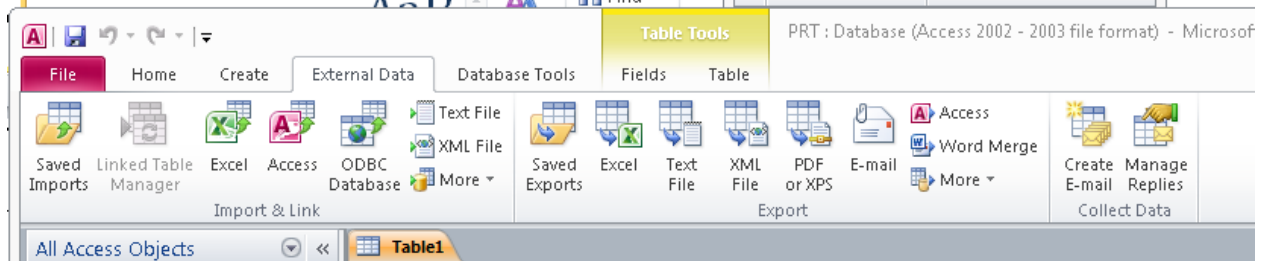
NOTE 1: not all of these databases currently have public views that you can query against. Email me if you can't access a database you want to and I will get the views created.

NOTE 2: you can only do queries/reports via this technique. If you want to change the actual data in the databases, you need to use the programs I've provided

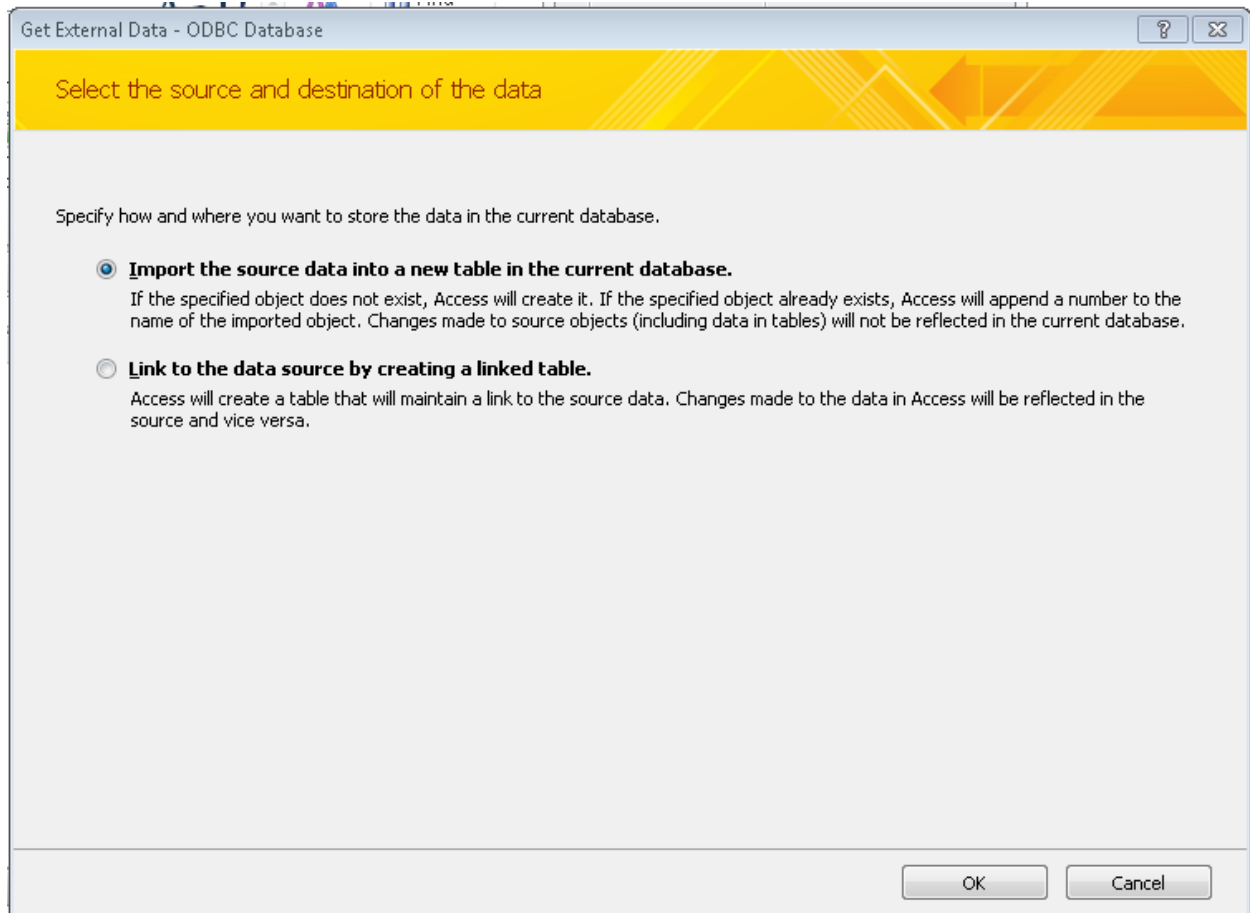
NOTE 3: you have to either be on our main network or logged in via a VPN connection to use the Linking option (described below). If you really need a "stand alone" database, you can do the Importing option, but the data is only current to the moment you do the import.

NOTE 4: If you do not have an ODBC Data Source defined for the database you wish to query, you need to follow the steps in the How To Add a ODBC Data Source to Your PC document. The rest of this document assumes you've got an ODBC Data Source defined (in this example, it is called WWInv and links to the Waste Water Inventory SQL database).

Go into your Access database and click on the EXTERNAL DATA tab on the ribbon.



On the ribbon, click on the ODBC Database icon.  
This window will appear



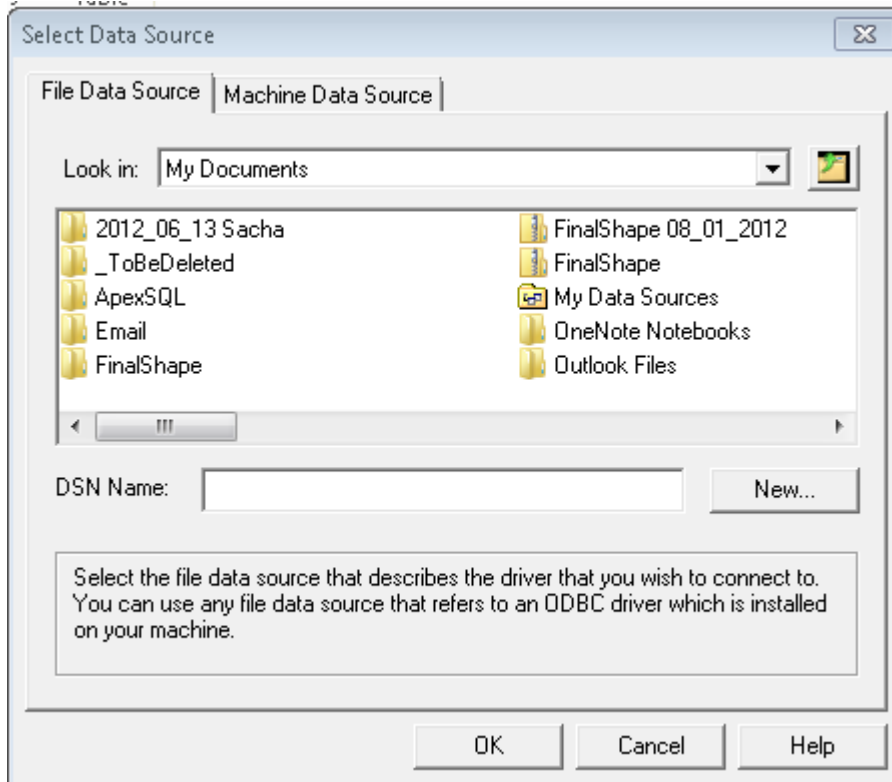
You actually have two options here: Importing and Linking.

The first option is the one selected by default. It is the Importing option. By using it, you will import a copy of data from the SQL server into your access database. You are grabbing a snapshot of the data at the moment of the import. Any changes made to the data in the database after your import will not appear in the Access database. The only time I would use this option is if I was attempting to deal with a public request for information. Once the data is imported, your Access database is self-contained and can be shipped to someone who doesn't have access to our sql servers.

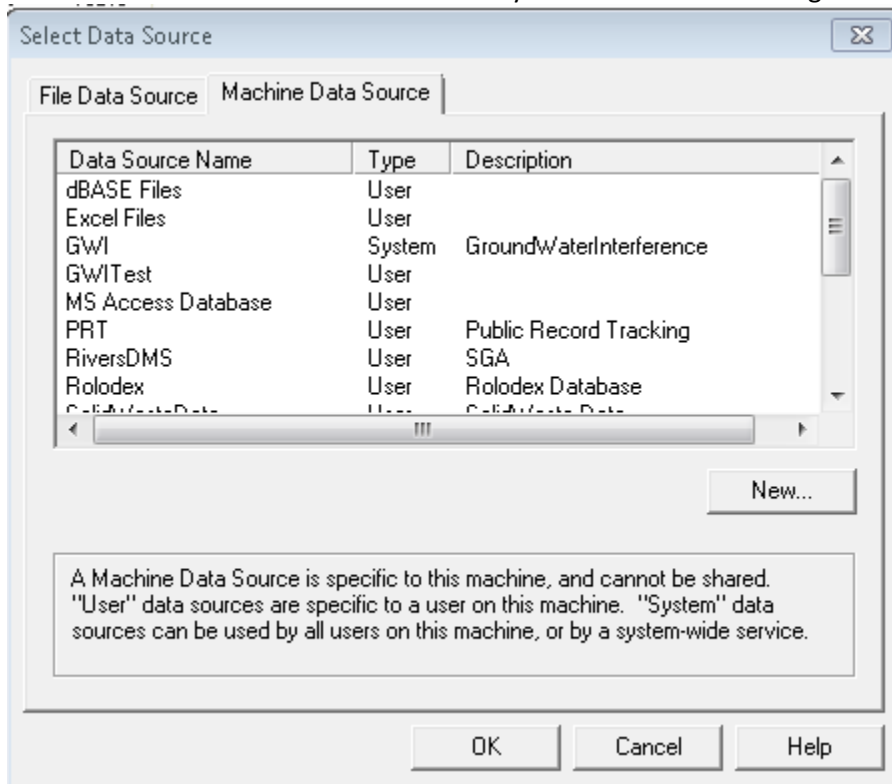
The second option is the one I would use most of the time. It is the Linking option. By using this, a live copy of the SQL server database table is created in your Access database. You will have to be connected to the ANR network to use the Access database, but so long as it is connected, you will see the actual data in the databases as fast as it is entered or edited. From the standpoint of Access, the linked table is equivalent to a “normal” Access table. Anything you can do in terms of querying or reporting against a table physically within the Access database can be done with the linked table. Once you have created a linked table, the definition is a permanent part of your Access database, you will not need to repeat these steps again for any given table.

So, move the check to the 2<sup>nd</sup> option Link To The Data Source By Creating a Linked table and press the OK button.

This window will appear



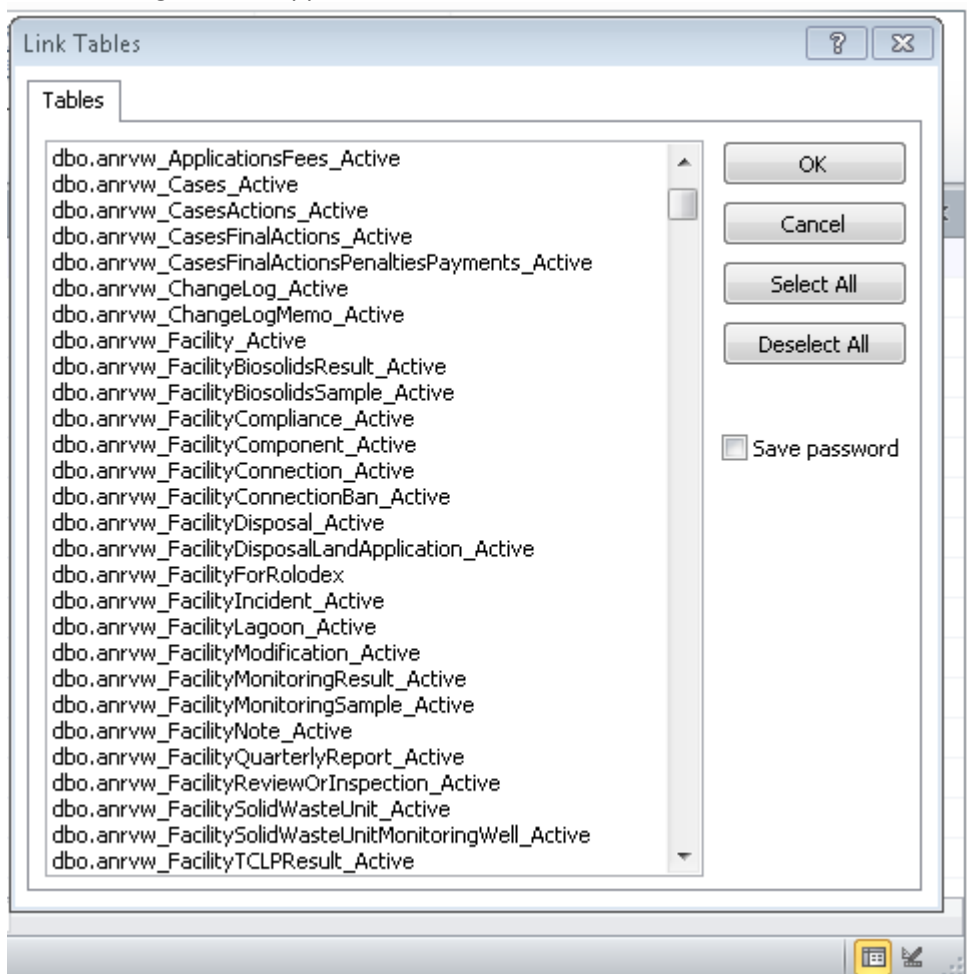
Click on the Machine Data Source tab and you should see something like this



This lists all the ODBC Data Sources available on this computer for me to select from.

My scrolling down, I can find my WWInv Data Source, high-light it and press the OK button to select it.

The following window appears



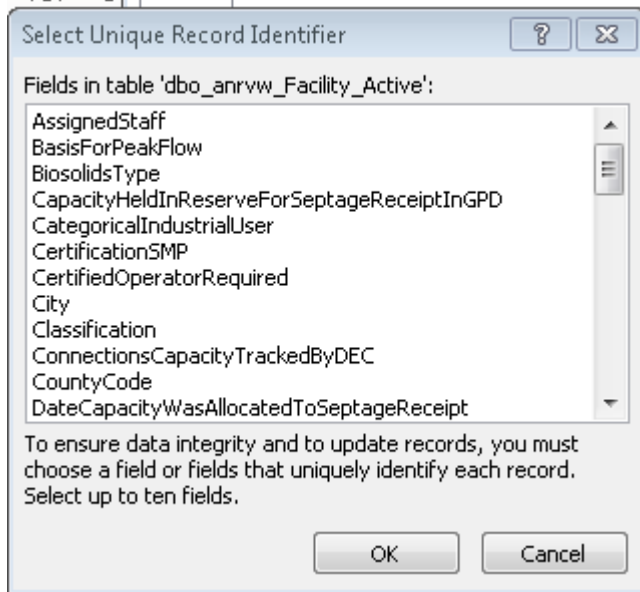
This shows you all the tables and views of those tables that you have access to within the database that the Data Source points to.

I set things up so anyone in ANR should have the ability to see and query against a collections of views instead of the tables themselves. These views are named with the following convention `anrww_<name of table>_Active`.

Along with letting me filter out deleted records, these views also let me put the fields into alphabetically order to make them easier to find when writing queries.

On the Linked Tables window, you need to pick the views you want to create a linkage for in your Access database. Once created, a linked table will stay in your MDB file until you delete it. You can always return to this window and select additional views that you want in your MDB File. Once you've selected your views, press the OK button

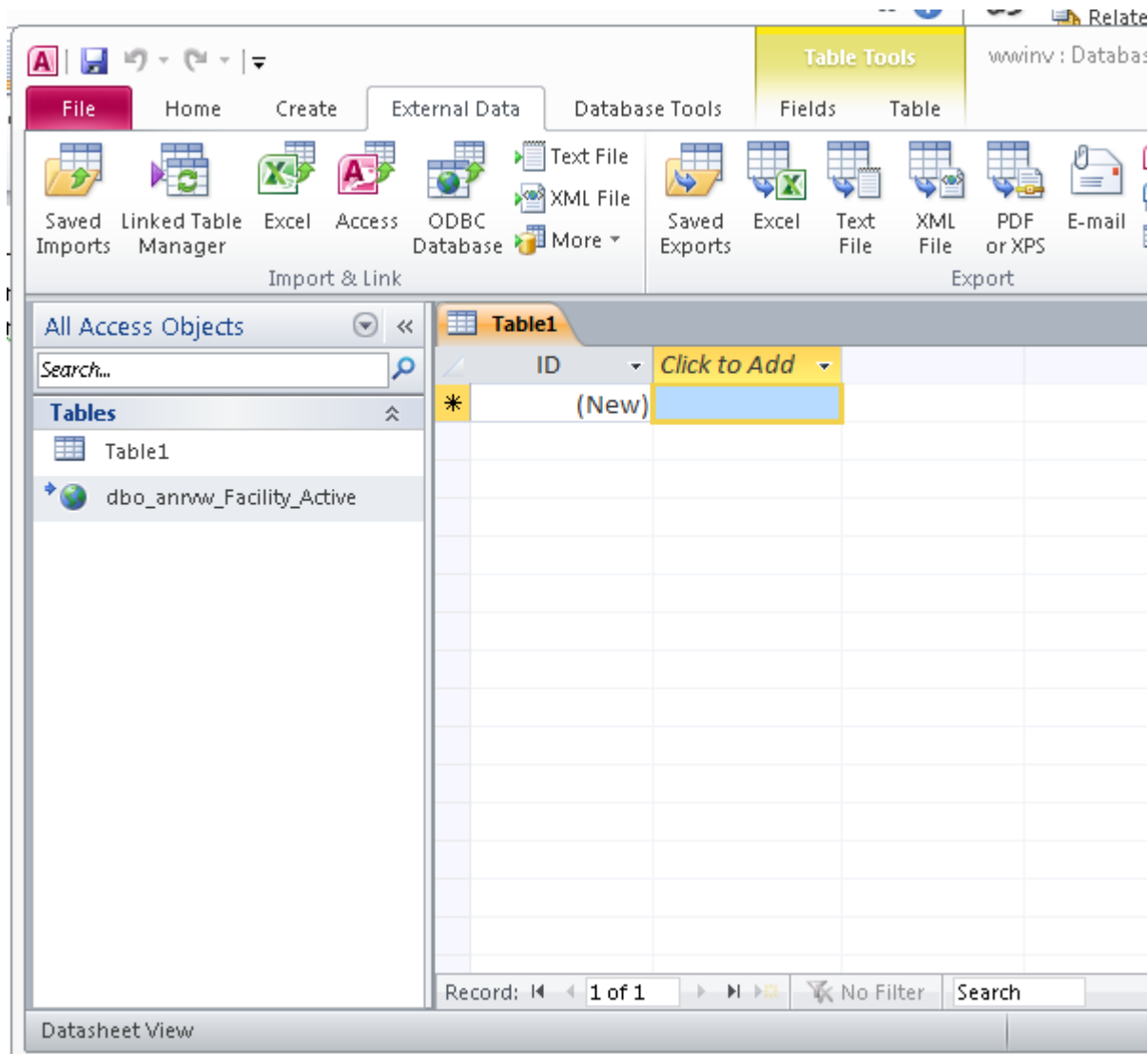
for each view you've selected, you will then be shown this window.



MS-Access wants you to indicate a field or fields that uniquely identify a record in the view being imported.

Every view should have a field down at the bottom of the list of fields with a name of <TableName>ID. This is the unique record identifier. High-light it and press the OK button. You will need to do this for view you are creating a linked table for.

Once you've indicated the Unique Record Identifier for each table/view you are importing the computer will process for a bit (5-30 seconds is not abnormal) and return you to the main Access window. The Tables area in the left-hand menu will now contain your new linked tables.



This last step is optional. I find it easier if the linked tables have the table names instead of the view name (IE FacilitiesPermit instead of anrw\_Facility\_Active). You can rename the linked tables by highlighting them, right-mousing and selecting RENAME from the popup window.

Your linked table is ready.

Write queries and reports to your heart's content.