# A whirlwind tour of the NSF databases and data analysis in Excel

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This document focusses primarily on using data from the report server to populate Excel spreadsheets

## Databases: Sybase ReportServer and Oracle Enterprise Reporting

### What is the ReportServer?

The ReportServer copies some of NSF’s production databases, including rptdb and FLflpdb, to support rapid response to queries that may come from other parts of the government, making it a fantastic resource for those who want to build automation tools. It is a Sybase ASE 16 database, for documentation, see [the Sybase Infocenter](http://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.infocenter.help.ase.16.0/doc/html/title.html). Either search, or start with the Reference Manuals and TransACT SQL. In DIS Weber Lauh is an expert on creating queries, and I have learned a lot from queries he has created for me.

Note: [Wikipedia](https://en.wikipedia.org/wiki/Adaptive_Server_Enterprise) reports that Sybase 15.5 was released in early 2010, then SAP bought Sybase. 16 was released in April 2014. NSF upgraded from 15.5 in 2017. This was encouraging, because I thought that the reportserver would be going away, but also discouraging to see how far behind NSF is.

### What programs talk to ReportServer?

Use port 5000 on rptsql.nsf.gov is the ReportServer. Only PCs have the ODBC connection by default; Macs can use openlink, which

First, only PCs have the ODBC connection to talk to rptsql

At NSF, all PCs have the app [DBI SQL](http://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.infocenter.dc00168.1603/doc/html/san1276279412126.html)[[1]](#footnote-1) which is useful for creating and optimizing queries.   
Excel, on both PC and Mac, contains Microsoft query, a visual query editor in Excel ’97, based on technology from [Zloof 1977](https://en.wikipedia.org/wiki/Microsoft_Query).

### What is Enterprise Reporting?

This is an Oracle Dimension database that

### Why use database query tool?

When a spreadsheet on someone’s computer is the sole authority on, say, which projects are to be funded, then nothing can be done if that person is sick or that computer fails.

A properly designed tool will have the computer do as many of the repetitive and tedious steps as possible, because those are where human inattention leads to errors.

, allowing you to focus on work that requires additional knowledge, insight, and/or experience.

As you get familiar with the tools, they may

While many see automation as a way to get the computer to do my work for

### Where is the data dictionary?

As a PD, I can’t find a data dictionary. Query to find which tables contain a given field or table

-- column names & types for table

SELECT sc.colid, sc.name, t.name, sc.length FROM sysobjects so

JOIN syscolumns sc ON sc.id = so.id

JOIN systypes t on t.usertype = sc.usertype

WHERE so.name like '#myTmp%' -- table name

ORDER BY colid

-- table & column names from fields

select so.name, sc.name, t.name, sc.length

from syscolumns sc

JOIN sysobjects so ON sc.id = so.id

JOIN systypes t on t.usertype = sc.usertype

where sc.name like '%ibm\_logn%'

order by so.name, sc.name

-- with protection information, too

select so.name, sc.name, t.name, sc.length, su.name, sp.uid, sp.action, sp.protecttype, sp.columns

from syscolumns sc

JOIN sysobjects so ON so.id = sc.id

JOIN systypes t on t.usertype = sc.usertype

JOIN sysprotects sp ON sp.id = sc.id

JOIN sysusers su ON su.uid = sp.uid

where sc.name like '%logn%' -- field name

AND sp.uid = 0 -- skip to see non-public tables, too

order by so.name, sc.name, su.name

Don’t overlook the power you get from being able to query all submitters, say, and deciding

## Mac section

### Openlink installation

Thanks to , the NSF security team has approved openlink as a 3rd party driver for connecting to ReportServer and making queries

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| 4/11/2017 5:00 PM | 1-178045149 | [ODBC Driver for Sybase Database](https://collaboration.inside.nsf.gov/sites/it_specialists/_layouts/15/listform.aspx?PageType=4&ListId=%7B8EA2266E%2DE31C%2D4E0E%2D94E7%2DFDA993D90D87%7D&ID=1110&ContentTypeID=0x0100405069017ABFF64B83AC6B4BD9325826) |  |  | Accepted | allow MacOS / MS Excel 2016 users to connect to Report Server database |

### Connection string:

1. Quoting the Sybase documentation... Note: For backward compatibility, SAP Sybase IQ includes the older Interactive SQL Classic (dbisqlc) utility. Use Interactive SQL rather than Interactive SQL Classic. Interactive SQL Classic is deprecated and will be removed in a future release of SAP Sybase IQ. [↑](#footnote-ref-1)