VINTUN

Impactful Solutions | Lasting Results

VDAX

VDAX Information Manual

Updated as of Thursday, August 15, 2019

Smart Data enhances decision making across your organization.

Table of Contents

1. Introduction ***4***

a. What is VDAX?
b. What does VDAX Provide?
c. What is in VDAX?
d. How does VDAX provide Smart Content?
e. Why choose VDAX?
f. Welcome to VDAX

2. Technology Overview ***8***

a. What is Online Analytic Processing (OLAP)?
b. How do OLAP cubes work?
c. What are the benefits of OLAP cubes?
d. What are the practical applications for OLAP cubes?

3. Subscription Offerings ***10***

a. Open Subscription
- What does the Open Data Series provide?
- What are the current OLAP cubes?
- What data is in each of the cubes?
- What else do I need to know about the Open Data Series and VDAX's database?

b. Premium Subscription
- What does the Premium Series provide?
- What does the implementation of Premium Series look like?

4. VDAX Website Instructions ***12***

a. What can I find in the VDAX homepage?
b. What can I find in the FAQ section?
c. How can I purchase a VDAX subscription?
d. What credentials will I receive?
e. How can I access my VDAX dashboard?

5. VDAX Connecting Instructions ***16***

a. *Excel*
b. *Excel* – PowerPivot information
c. *Tableau*
d. System and application requirements

2000 Duke Street
Suite 175
Alexandria, VA 22314

vdax.operations@vintunllc.com
www.vintunllc.com/VDAX

Table of Contents

6. Microsoft Azure Portal Instructions ***20***

a. Introduction to your *Microsoft Azure* account
b. How to create a Virtual Machine (VM)
c. Managing your virtual machine
d. More information on *Microsoft* virtual machines

7. SQL Studio Management ***22***

a. Introduction to SQL Management Studio
b. System Requirements
c. SQL Management Studio Interface

8. Starting your VDAX initiative ***26***

2000 Duke Street
Suite 175
Alexandria, VA 22314

vdax.operations@vintunllc.com
www.vintunllc.com/VDAX

1) Introduction

a. What is VDAX?

VDAX (Vintun Data Analytics Exchange) is a PostgreSQL database hosted on a Microsoft Azure virtual machine. When a user connects to VDAX via a third-party application, they connect to an "Analysis Services" database. The user is then given a list of Online Analytical Processing (OLAP) cubes to choose from. They pick an OLAP cube and begin working with the data they chose. The OLAP cube serves as an outside data source that populates data in third-party applications when a user chooses a dimension or measure.

b. What does VDAX provide?

VDAX should not be confused with a tool or software license. VDAX serves as a content or data provider. Tools or third-party applications like Excel, Tableau, and PowerBI consume, display, and analyze the data VDAX provides. VDAX also provides data preparation. Through data fusion and artificial intelligence, VDAX can produce ready to use smart content. The content will appear organized, well-structured, and easily accessible.

c. What is in VDAX?

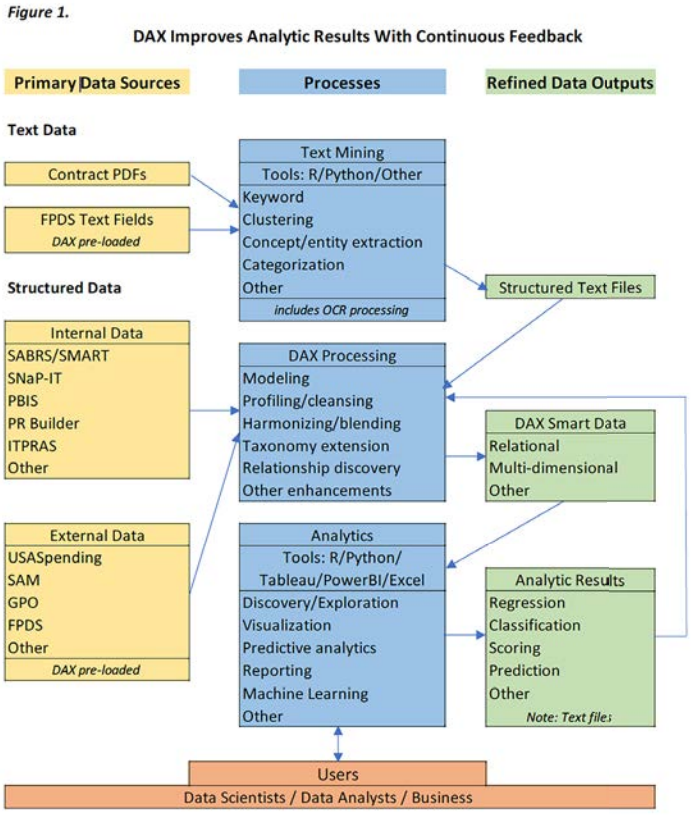
VDAX offers two Series that the user can subscribe to: the "Open Data Series" and "Premium Series." Currently, VDAX's database has a variety of Government data from sources like Federal Procurement Data System (*FPDS*), System for Award Management (*SAM*), FedBizOpps (*FBO*), *USASpending*, and *GovWin*. The data is accessible through our "Open Data Series" offering. VDAX's "Premium Series" allows a user to have their data ingested into VDAX's engine, while still having access to our Open Data. As a user, you can organize your data according to your needs. Premium Series users can have their data dimensions and measures custom named. Premium Series data can be created in a variety of different formats (.csv, .cub, PostgreSQL database, etc.). Customers receive support as needed from our team of VDAX experts. Our Premium Series is the

customizable option to suit your specific use-case.

d. How does VDAX provide smart content?

VDAX makes data more intelligent by using a variety of techniques. VDAX starts by adding additional Meta-data from domain specific knowledge bases including hierarchies and other attributes. The tool also harmonizes data from disparate heterogeneous sources to make it seem like it came from one seamless system even if those systems apply different data standards. Other VDAX algorithms 'connect the dots' enabling users to see data from any source aligned with that of any other. VDAX can back propagate results from one tool so it can automatically appear in another. (For example, a Python algorithm forecasts spending, which can then be back propagated so that the forecast values can appear in Tableau and other easy to use tools.) Finally, VDAX data and logic models are continuously updated as federal standards change overtime. When changes occur, any old data is automatically converted to the new standard so that historical trends are not lost.

Figure 1.



VDAX's supported capabilities ensure consistently reliable data. The data is equipped with line of sight drill back that allows users to explore a copy of the original source data from the refined data. With this, VDAX reconciles data both from the original source and across source systems. VDAX additionally uses Embedded Data Profiling to allow the user to understand the nature, number, and location of all data problems from any source in a single view. It achieves this by continually testing the data quality and

including the resulting diagnostics directly in end user cubes. With point and click, the user can choose to include or exclude questionable data from any report or analysis. A use case of this capability would be if a user wishes to see which contracts with invalid NAICS or PSC codes were used by which Contracting Awarding office. Finally, conformed data models follow federal standards and are extensible to accommodate unique agency requirements.

e. Why chose VDAX?

If you can create content with other tools, then why VDAX? VDAX is like Netflix; people can make videos with their own devices and don't need a streaming service to do so. However, in order to get maximum return on your investment, organizations can use VDAX to further leverage their tool investments. VDAX makes consuming data simple and effective. Business case objectives include:

Better Analysis. Most business users, analysts, and data scientists spend 80% of their time on data prep leaving little time for more in-depth analysis. VDAX data fusion and AI based data preparation services change the current dynamics and make more time available for analysis.

Larger Data Sets. Most modern Business Intelligence (BI) and Analysis tools cannot support enterprise scale data sets. For example, the most popular BI tool has a limit of 10 GB. Compare that to the VDAX 3tb data set for open federal budget and spending data. While the tools cannot maintain a data set that large on their own, they can easily access and display VDAX data sets that large.

Data vs Business Issue Discussions. The proliferation of tools allows different people to make their own data sets. Unfortunately, that can result in meetings where the focus is whose data is right. If everyone can access their financial, HR, and other enterprise data from VDAX, then the main discussion can more easily focus on business, not data issues.

Trusted Information. VDAX supports:

a) line-of-sight drill back to source details from dashboards, visualizations, and interactive reports;

b) auto reconciliation across source systems; and

c) embedded data profiling for continuous data quality monitoring.

Shared Information. VDAX can share results from one type of tool with another. For example, a data scientist's algorithm may score contracts for fraud using R or Python. Few procurement SMEs can use those tools, but VDAX can take the contract fraud scores and blend them back into the VDAX content. Once there, the scores will be accessible to all users with the tools that they are comfortable using.

Reduced Duplication of Effort. With multiple tool sets, multiple groups often perform the same effort. For example, business users, data scientists, and IT professionals may need to access data from the financial system. This duplication of effort is required because a model built for one type of tool usually doesn't work well for another type of tool. VDAX populates a universal model once and then projects it multiple times into different physical models required by different types of tools.

Sustainability. Data models are notoriously difficult to maintain as data standards and requirements tend to change over time. VDAX data models support published data standards for federal LoBs as well as Agency specific extensions. As the published federal-wide standards change, VDAX models are changed and upgraded to provide seamless blending from old to new standard. There is no additional charge for these upgrades for customers with current subscriptions. For Agency specific models, VDAX can also seamlessly blend new with old. This keeps history intact and eliminates the need to rebuild everything because standards have changed, or new tools have been introduced.

f. Welcome to VDAX

VDAX offers a large amount of flexibility and can be useful to a variety of different

organizations. Cloud-based data services are becoming the standard and VDAX provides not only a cloud-based database, but also data that is easy to comprehend, clean, and ready to use. We can provide both on-premise and off-premise solutions; and support teams to help implement VDAX, analytics, and data science. Chose VDAX and immediately provide value to your mission and organization.

2) Technology Overview

a. What is Online Analytical Processing (OLAP)?

VDAX displays data by taking advantage of the capabilities of OLAP cubes. OLAP facilitates business-intelligence queries using pre-processing to store every combination of dimensions, measures, and hierarchies into a data cube. OLAP was created as a response to business intelligence needs in the late 1990s. Data miners were frustrated with the sluggishness of relational databases for the sheer volume of rows they needed to traverse to make sense of normalized data sets. This processing methodology was highly inefficient causing a slowdown for other critical business calculations at a time when high performance computing power was scarce. OLAP is still the popular choice today for performing data analytics

b. How do OLAP cubes work?

When analyzing data, it is necessary to break down the information you are looking for into different categories to produce usable insights. An example of these categories would be the number of sales made in a geographic region over a period of time. These categories are called dimensions in the OLAP data cube i.e. the x, y, and z axis. Once the cube is formed, it becomes a stand-alone data source which can be presented in many different data analysis tools and MDX queries. MDX stands for Multidimensional Expression. It is the query language for OLAP like SQL is for relational database management systems. MDX is a calculation language with syntax like spreadsheet formulas achieving high readability and functionality.

c. What are the benefits of OLAP cubes?

OLAP's pre-processing capability minimizes the amount of real time processing needed to complete a query thus allowing the user to perform multidimensional analysis in an efficient way. This allows the user to complete complex calculations, trend analysis, and sophisticated data modeling using less resources. The data to form the cube can come from a multitude of sources to give support complex, interrelated queries. Some other benefits of using an OLAP cube is the reduced file as it can contain a million data rows in a manageable file. The user is also able to update the row's data size independent of the workbook which takes away the need to send a fresh copy every time new data arrives.

d. What are the practical applications for OLAP cubes?

OLAP cubes can easily be connected to Excel. The only way to display OLAP data is through a PivotTable or PivotChart report but not as an external data range. You can save OLAP PivotTable reports and PivotChart reports in report templates, and you can create Office Data Connection (ODC) files (.odc) to connect to OLAP databases for OLAP queries. When you open an ODC file, Excel displays a blank PivotTable report, which is ready for you to lay out.

3) Subscription Offerings

a. Open Subscription

• *What does the Open Data Series provide?*

VDAX Open Data Edition converts publicly available federal data into meaningful information. Interactive information includes federal budgets, spending, contracts, grants, positions, and vendors. VDAX validates and reconciles information according to the Digital Accountability and Transparency (DATA) Act requirements for *USASpending*. Authoritative sources also include SAM, FPDS, Office of Management and Budget (OMB), Department of Defense (DoD), and others. VDAX continues to grow its library as more data is published under the OPEN Government Data Act.

• *What are the current OLAP cubes?*

VDAX Open Data Edition currently has the following cubes: “Appropriation Balances,” “Appropriation Program and Object,” “Budget Authority Control USAS,” “Contracts V7,” “DoD_Summary,” “FBO,” “FBOD” “Federal Awards 2,” “Federal Treasury Recon,” “Federal Workforce,” “File All Combined,” “Financial Accounts by Awards,” “Financial Accounts by Program and Object,” “Grants,” “OMB Budget Authority V2,” “OMB Outlays V2,” “OMB Receipts V2,” “OMB USAS Authorization Recon,” “Omnibudget,” “Overall Totals USAS,” “Sf133 v3,” “SubAwards,” “Treasury Balances,” “Treasury Breakdown,” “Universal Award Recon,” and “USASpending Recon.”

• *What data is in each of the cubes?*

VDAX Open Data Edition’s different cubes capture information related to their titles. For example, the “Appropriation Balances” cube strictly focuses on spending and appropriation by government agency. The cube allows for the ability to look at sub-agencies, awarding offices, and their associated codes. The “Contracts V7” cube has information related to awardees, awarding agencies, NAICS codes, PSC’s, and more. “Contracts V7” also allows for the ability to bring in measures like “FPDS Transaction Count,” “Total Federal Obligated Amount,” and unobligated amounts. In addition to

government transaction related data, VDAX looks at federal employees with the "Federal Workforce" cube. The "Federal Workforce" cube looks at information like department, experience, and paygrade.

• ***What else do I need to know about the Open Data Series and VDAX's database?***
VDAX's database is currently called "IG Budget Spending Analysis V3." The database serves as a container or folder that holds all the OLAP cubes. Theoretically speaking, smaller databases could be created to organize or hold the cubes in different ways. VDAX's database contains 61 million rows and is continuing to grow as public data is added and updated. Dimensions within the database allow you to drill all the way down until you reach a concatenated level. Each dimension varies; however, most dimensions have a hierarchy of around six levels. Depending on the cube, an OLAP cube within VDAX contains anywhere from about 15 to 60 dimensions. Each dimension generally has a variety of different subcategories.

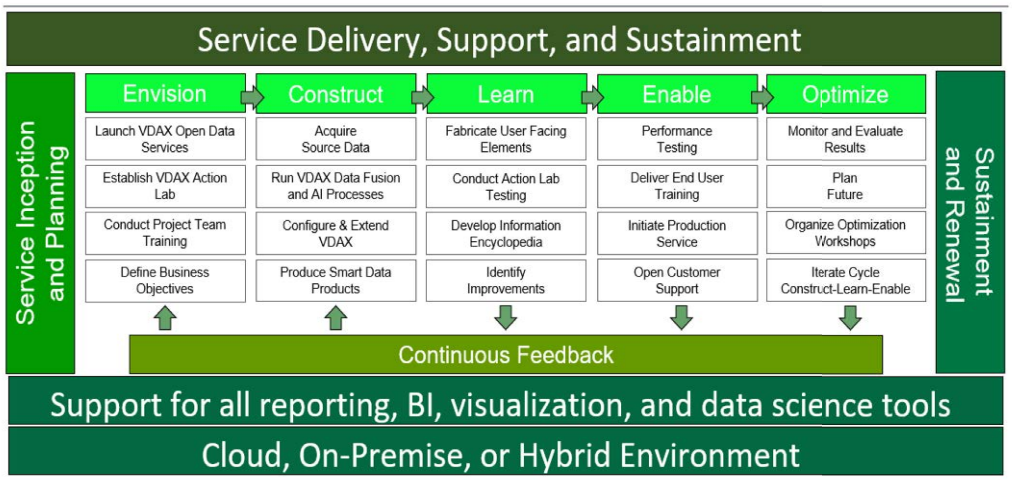
b. Premium Subscription

• ***What does the Premium Series provide?***
VDAX Premium Series works with all data, internal, external, as well as open. VDAX knowledge bases follow the Federal Integrated Business Framework (FIBF) for Federal Lines of Business meaning we organize data by financial management, grants management, human capital, procurement, and travel. Program office and performance management models integrate the disparate FIBF models. VDAX professional support includes data science, advanced analytic, visualization, and information engineering services.

• ***What does implementation of Premium Series look like?***
See next page for report sample.

Figure 2.

Re-imagining reporting, BI, analytics, and data science as integrated services.



VDAX Information-as-a-Service Methodology

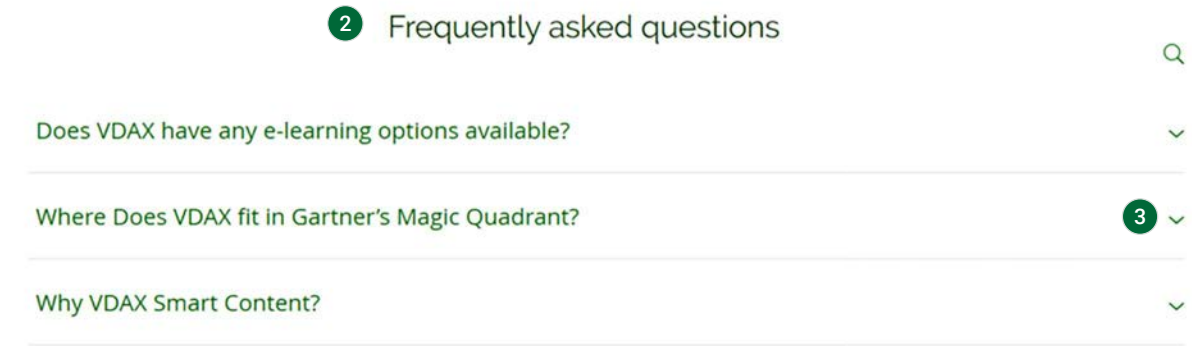
4) VDAX Website Instructions - https://www.vintunllc.com/vdax

a. What can I find in the VDAX homepage?

The homepage features information covering the basics of what VDAX has to offer. A lot of the information on the homepage comes from the VDAX product slick. The VDAX product slick can be accessed by pressing the “Download Product Slick” link (1). The homepage also has several links to your personal VDAX Dashboard Platform. After registering, when you are logged in, these links will bring you to your account information. In your account information, you will find the server you connect to in third-party applications and your username. VDAX’s homepage provides a Frequently Asked Questions (FAQ) section towards the bottom. The FAQ includes an e-learning information video, a comparison to industry examples, “Where does VDAX fit in Gartner’s Magic Quadrant?,” and more information on why a user should choose VDAX. Throughout our homepage we have links to our social media. Please be sure to check us out. Your support is appreciated!

b. What can I find in the FAQ section?

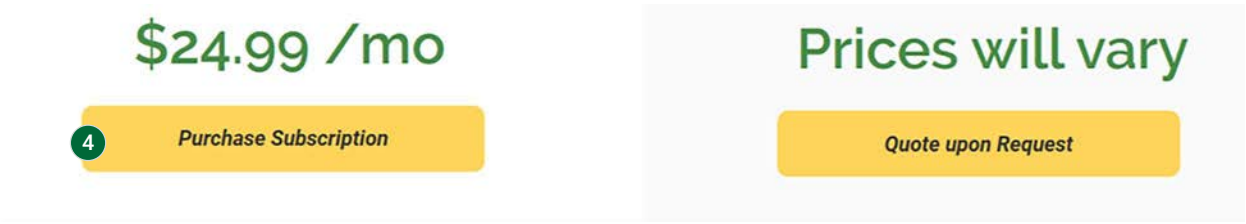
VDAX's website's FAQ section currently has three sub-topics. The three sub-topics are "Does VDAX have any e-learning options available?," "Where does VDAX fit in Gartner's Magic Quadrant?," and "Why VDAX Smart Content?." Under "Does VDAX have any e-learning options available?," we have a promo video that includes information about VDAX. The promo video includes several short videos and snips of what a VDAX user can produce. Often customers have difficulty understanding what VDAX is. "Where does VDAX fit in Gartner's Magic Quadrant?" provides more information on what VDAX provides. The section also explains how VDAX itself is not an app; VDAX enhances apps and information. The last section is "Why VDAX Smart Content?." "Why VDAX Smart Content," gives information related to why a customer should choose VDAX. This section is also copied into our user guide below (2). A website visitor can access any of the sections within the FAQ by clicking on the dropdown arrows that appear on the right side of the screen (3).



c. How can I purchase a VDAX subscription?

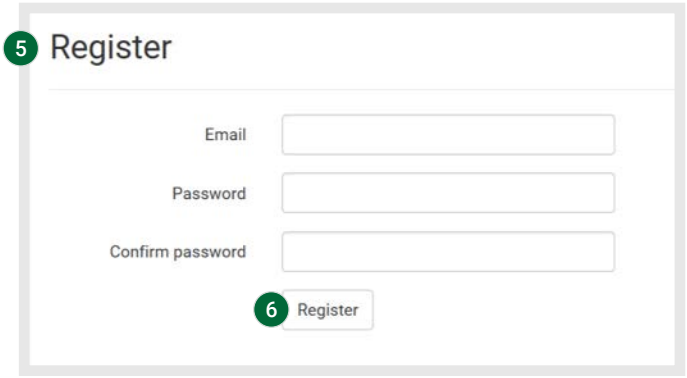
VDAX has two subscriptions to choose from, the open data series subscription and the premium series subscription. On the homepage there is a link to click either one of these options (4). After clicking the link, you will be brought to the register and login page. If you choose to register as a new user, follow these steps (5). To create an account, you will have to provide your email and a password (6). After creating an account, you can move forward by purchasing a subscription.

The open data series subscription charges a user once a month and they can cancel their



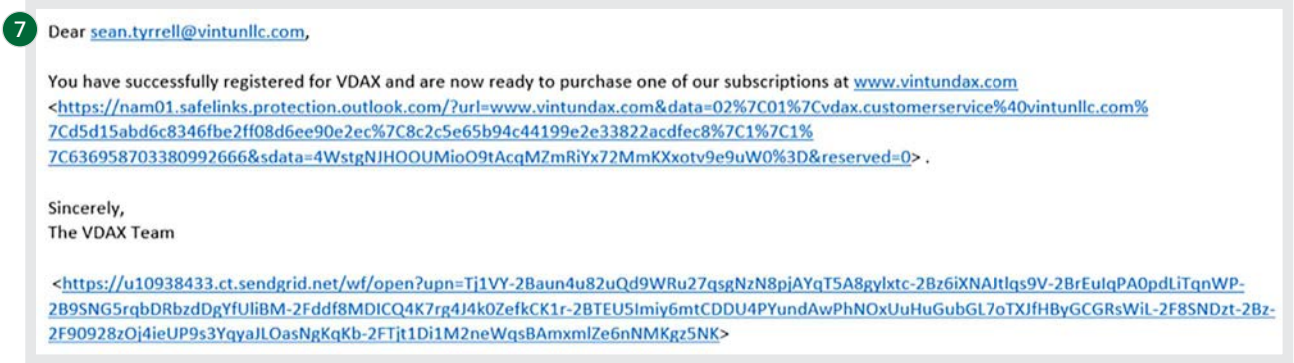
subscription at any time. The premium series first asks a customer several questions, and then after the VDAX internal team collaborates, they will provide the customer with a quote. The questions regarding premium series will help the VDAX team better understand your organizations goals and how you plan to use your data. Both subscription offerings follow a *PayPal* payment process.

d. What credentials will I receive?



After signing up for an Open Data Series account, you will receive several emails. The first email will welcome you to VDAX (7).

The second email will come from *PayPal*. It verifies your payment and provides you with a receipt. You will also receive an email that grants you a password for connecting to the VM in third-party applications. The



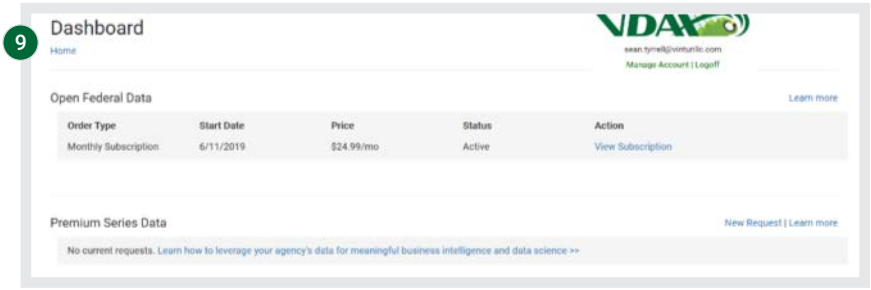
password should be used in addition to other information you can find in your account dashboard. If you sign up for a Premium Series account, a representative will reach out to you shortly after.

e. How can I access my VDAX dashboard?

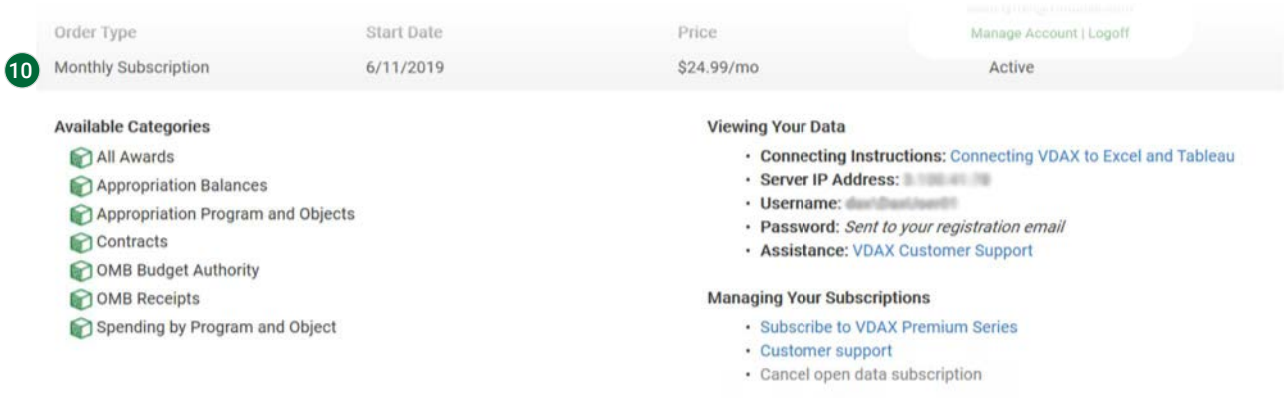
After you have created your account, if you are logged in, you can access your VDAX dashboard. The dashboard can be accessed simply by pressing the VDAX dashboard link that appears on the front of the homepage (8). The first page of your dashboard will provide you with your subscription type, when it started, and how to learn more about your subscription (9). If you click on "View Subscription" you will move to the second page of your dashboard. The second page provides a variety of information. "View Subscription" will give you connecting instructions, system requirements, application requirements, a server name, and a username. Also, in the dashboard is information related to your account (10).

8

9



10

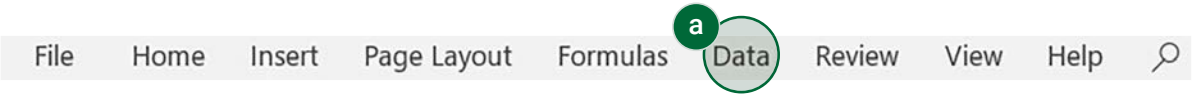


5) VDAX Connecting Instructions

a. Excel

For Version 1904 (Build 11601.20230)

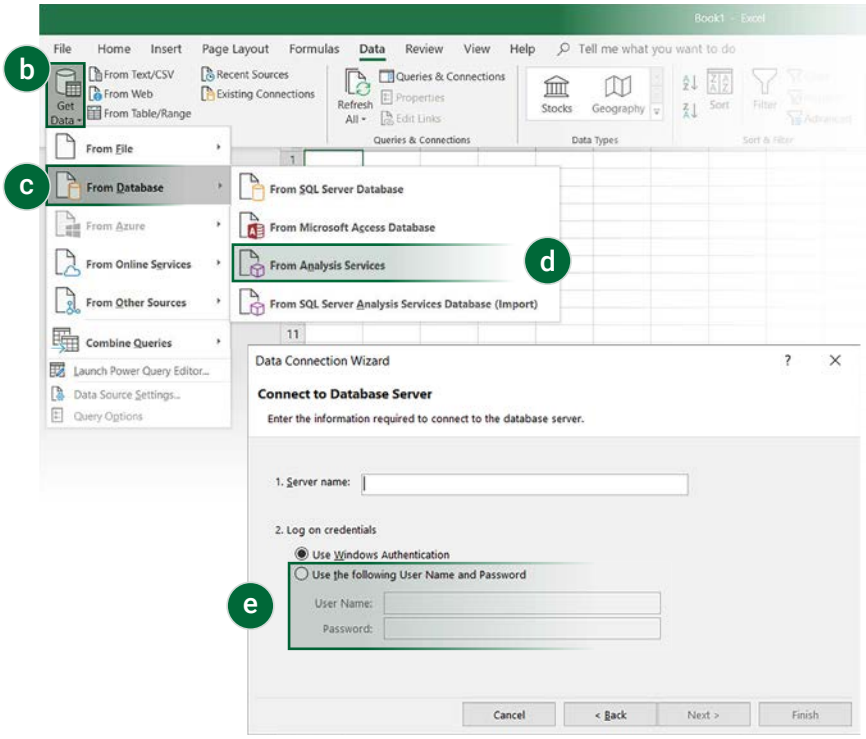
a. In Excel click on the *"Data"* button on the toolbar that runs across the top of the screen on the primary toolbar.



b. Then in the top left of the screen select the dropdown next to *"Get Data."*

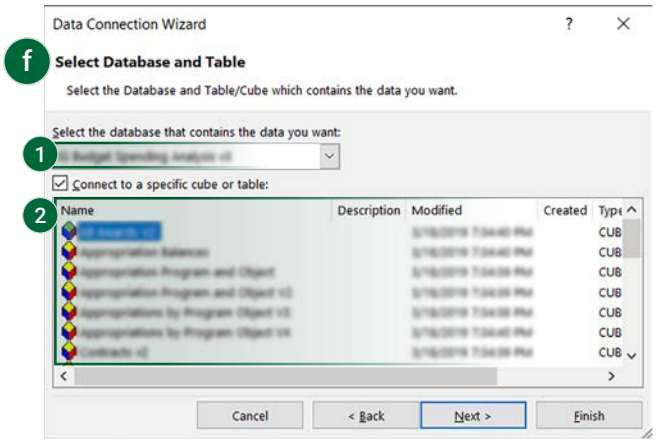
c. Select *"From Database."*

d. Select *"From Analysis Services."*



e. You will be prompted with a screen that asks you for your server name. Provide your server name and then choose to *"Use the following User Name and Password." These credentials will be provided to you.*

f. You will then be connected to the virtual machine in Excel. *Choose your database* (1), *choose your cube, and go!* (2)

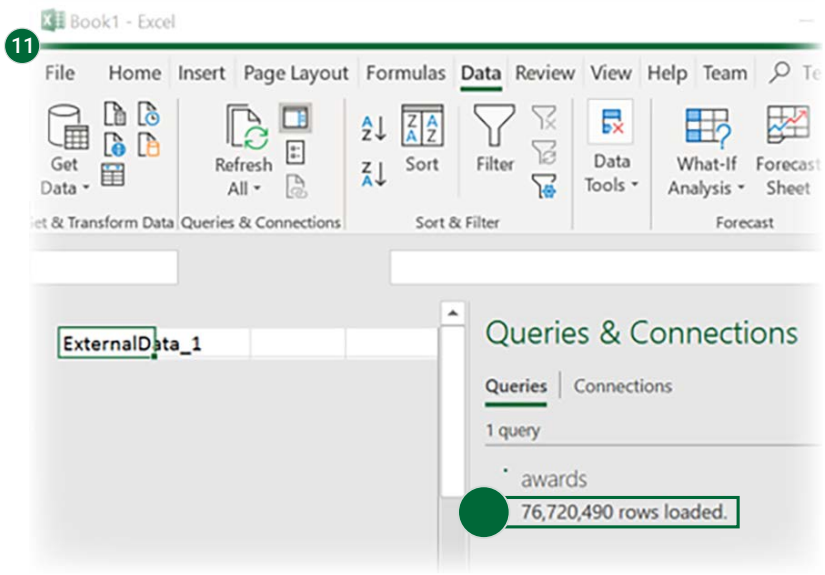


b. Excel – PowerPivot information

Does Power Pivot work with VDAX?

Power Pivot is supported with the VDAX Premium Series option.

As shown below (11), Excel has connected to over 76 Million rows of VDAX contract and grant awards data.



There are several methods to load data into Excel for use with Power Pivot. The method used for the above data to connect to VDAX tables is SELECT Data/ Get Data From Database/ From SQL Server DB.

See Microsoft Excel, Power Query, and Power Pivot documentation for more methods of connecting to data stored in the MS SQL Server data base.

Your VDAX Premium Series may offer more options for Power Pivot data connections than MS SQL Server.

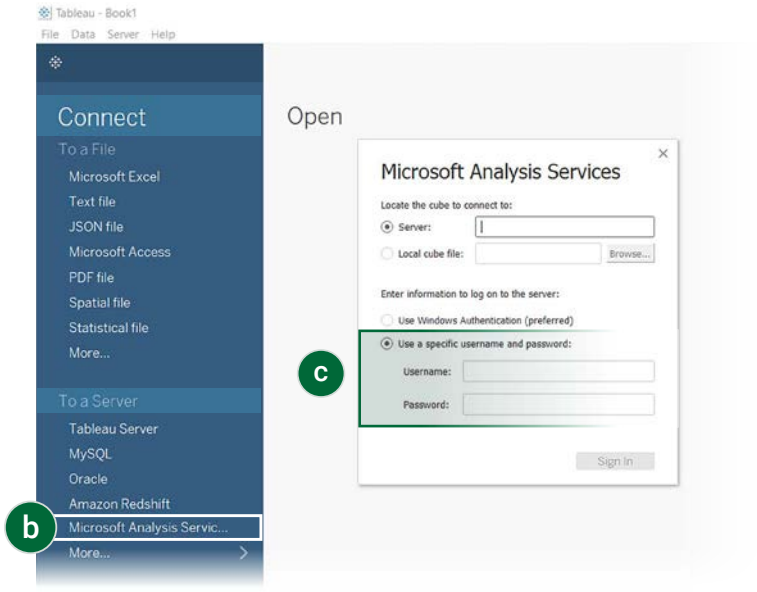
c. *Tableau* As of Version 10.2

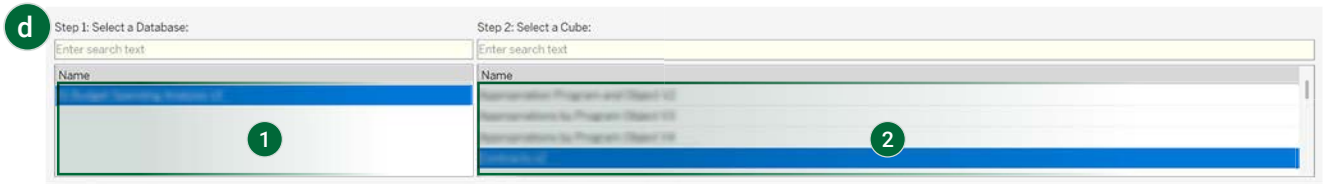
a. Open Tableau

b. You will have a variety of options to *"Connect."* Under *"To a Server"* click *"Microsoft Analysis Services."*

c. Like with Excel, plug in your same server name and provide your own username and password. *(These credentials will be sent to you)*.

d. You will then be connected to the virtual machine in Tableau. *Choose your database* (1)*, choose your cube* (2)*, and go!*





Note: If you are having trouble connecting to the virtual machine, please make sure that it is started. With data constantly being updated and made as current as possible the machine occasionally is stopped.

d. System and application requirements

System Requirements and Application Versions

VDAX's open data subscription is limited to Microsoft Windows operating systems. We are working to extend viability of alternate operating systems in ways that are most friendly to the user.

For maximum user speed and workability VDAX recommends using a data driven computer.

In its native form, VDAX runs as an Analysis Services database. Analysis Services is a new form of database; thus, some applications will not have the ability to connect. The application requirements to connect to an Analysis Services database are written below.

The recommended applications and versions are:

1. 1.8 Microsoft Office 2013 – Excel (or a more recent version).
2. PowerBI (in its most recent version).
3. Tableau (in its most recent version).
4. Any analysis tool or application that can connect to Microsoft Analysis Services or SQL Server Analysis

Please Note: As VDAX continues to develop it will be made available in additional formats. Users will also be able to request a specific format that best suites their application (csv, .cub, views, postgre SQL database, etc.).

6) Microsoft Azure Portal Instructions

a. Introduction to your Microsoft Azure account

Azure virtual machines (VMs) can be created through the Azure portal. This method provides a browser-based user interface to create VMs and their associated resources. In this section you will learn how to use the Azure portal to deploy a virtual machine (VM) in Azure that runs Windows Server 2016. To see your VM in action, you then RDP to the VM and install the IIS web server.

If you don't have an Azure subscription, create a free account before you begin. To sign into your Azure portal visit https://portal.azure.com and provide your sign in credentials.

b. How to create a virtual machine

i. Choose Create a resource in the upper left-hand corner of the Azure portal.

ii. In the New page, under Popular, select Windows Server 2016 Datacenter.

iii. In the Basics tab, under Project details, make sure the correct subscription is selected and then choose to Create new resource group. Type myResourceGroup for the name.

iv. Under Instance details, type myVM for the Virtual machine name and choose East US for your Location. Leave the other defaults.

v. Under Administrator account, provide a username, such as azureuser and a password. The password must be at least 12 characters long and meet additional password requirements.

vi. Under Inbound port rules, choose Allow selected ports and then select RDP (3389) and HTTP from the drop-down.

vii. Leave the remaining defaults and then select the Review + create button at the bottom of the page.

c. Managing your virtual machine

VDAX can be hosted on a variety of different cloud environments. Recently, we have chosen to host VDAX in Microsoft Azure. Like all virtual machines, it is important to monitor your usage when using VDAX. In order to connect to VDAX's database in a third-party application, you need to ensure that your virtual machine is started. (If your virtual machine is not started, connection to third-party applications will not be successful). To do this open the virtual machine in your Microsoft Azure portal and then click on start in the window's top ribbon. Virtual machine usage can be expensive. If you are not using the virtual machine, we recommend that you have it stopped. To stop the virtual machine, click on the stop button in the virtual machine's top ribbon. For more information on your virtual machine's usage you can view charts in your machine's main window, and you can also visit the cost management section of your virtual machine. The cost management section provides monthly invoices related to your payments.

d. More information on Microsoft virtual machines

A lot of additional activities can be completed in the Microsoft virtual machine. For example, a user can:

- Look into more effective ways to monitor usage
- Receive assistance from an Azure representative
- Create, adjust, and monitor user accounts
- Backup databases, and much more.

For more information on Microsoft Azure and Microsoft virtual machines visit https://docs.microsoft.com/en-us/azure/virtual-machines/windows/overview.

7) SQL Studio Management Instructions

a. Introduction to SQL Management Studio

SQL Management Studio plays a significant role in managing your VDAX databases' entries. If your database is not properly setup, you can run into an assortment of different problems. For example, SQL Management Studio governs how you connect to your VDAX data source and what type of source it is (in this case, an Analysis Service source). Another example is that SQL Management Studio manages how your data is represented or shown to an end-user. Cells will not populate with numbers or your data can be unreadable if your data is not properly set up. The program is not the actual server itself but a connector that allows you to manage the data directly. Doing so will enable it to act as an intermediary between the raw data and the OLAP cubes.

The user will access SQL Management Studio when they wish to modify, pull, or manage attributes of data for their project. Depending on the project, some users will not be able to access these capabilities. Users will also be able to grant access to the data on visualization tools such as Power BI.

b. System requirements

- 600-MHz (or faster) processor
- Microsoft® Windows NT4 with SP4 or later, Microsoft® Windows 2000, Microsoft® Windows 2000 Server, Microsoft® Windows XP, Microsoft® Windows 2003 Server, Microsoft® Windows 2008 Server, Microsoft® Windows Vista, Microsoft Windows Vista x64, Microsoft Windows 7, Microsoft Windows 7 x64
- 128MB RAM or more
- 140MB of available HD space for program installation
- Super VGA (800x600) or higher resolution video adapter and monitor; Super VGA

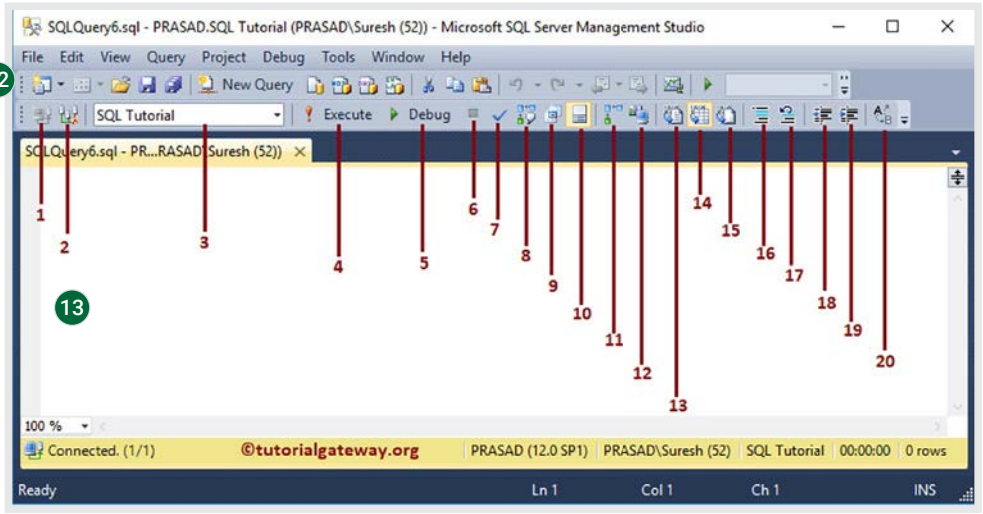
(1024x768) or higher resolution video adapter and monitor recommended

- Possibility to connect to any local or remote PostgreSQL server
- The requirements to run this program are not significant. Every modern machine will be able to run SQL Management Studio.

c. SQL Management Studio Interface

When you want to write a new query against any database, you click New Query button to pull up the Object Explorer (12). This is a Tree view structure that will display all database Objects in a server. Each folder holds their own related information. The Database folder holds the databases that are available in the server. This includes databases that belong to the database engine, analysis services, reporting services, and integration services. The Security folder allows users to create logins and manage server roles among other security related tasks. The Server Objects folder contains information about using a linked server, service brokers, system endpoints, database mirroring, etc. The Management folder is used for maintenance related tasks.

Next to the Object Explorer is the Query Window (13). This area is used to write a query against the data set. Optionally, you can use Query Builder to build your own query graphically.



d. SQL Management Studio editor toolbar

Below is a list of all the available options that can be utilized in the SQL Management Studio editor toolbar (the information was gathered from https://www.tutorialgateway.org/sql-server-management-studio/):

- **Connect:** Used to connect to Server.
- **Change Connection:** You can change the existing connection by clicking this button.
- **Available Databases:** This drop down list will display all the databases that are available in this server. You can select the database that you want to work with.
- **Execute:** It executes the query inside the query window and returns the result in the result pane.
- **Debug:** It will help you to debug your code.
- **Stop:** It will stop the running query. It will help you to stop the long running query.
- **Parse:** Use this to check whether the Query is parsed or not.
- **Display Estimated Execution Plan:** This will display the Estimated Execution Plan for this query.
- **Query Option:** Use this button to set the ROWCOUNT, TEXTSIZE, and execution timeout.
- **Intellisense Enabled:** By clicking this button you can enable Intellisense for this query window. This will help you to find the syntax errors, and it will auto suggest the function names.
- **Include Actual Execution Plan:** Enabling this option will include the Actual Execution Plan along with query result. This will help you understand the execution.
- **Include Client Statistics:** Enabling this option will include the Client Statistics (Execution type, Bytes sent and received etc) along with query result. This will help you understand the execution.
- **Result to Text:** Result will display as text.
- **Result to Grid:** Result will be displayed in table format or grid format. This is the default one.
- **Result to File:** Use this option to save the query result in text file.

- **Comment out the Selected Line:** Click this button to comment the current line.
- **Uncomment the Selected Lines:** Click this button to uncomment the current line or selected line.
- **Decrease Indent:** Used to decrease the distance.
- **Increase Indent:** Use this to increase the distance. Use Decrease Indent and Increase Indent to properly organize the code.
- **Specify Values for template parameters:** Used to specify Values for template parameters.

8) Starting your VDAX initiative

To learn more about VDAX you can visit any of our websites or social media webpages below:

- https://www.vintunllc.com/vdax
- https://www.facebook.com/VDAX-2314638395262501/
- https://www.youtube.com/channel/UCWeSRJ6mebYWUpbOZ-pGucA/about

To reach out to a VDAX representative and learn more about Vintun's data analytics and data science solutions contact any of the following emails below:

- vdax.customerservice@vintunllc.com
- vdax.tier1support@vintunllc.com

To schedule a demo or meet in-person with a VDAX representative please contact the following email:

- vdax.operations@vintunllc.com

For any additional information regarding Vintun LLC please visit our main website:

- https://www.vintunllc.com