


Deltek Vantagepoint Analysis Cubes

Installation and Configuration Guide

August 13, 2024



While Deltek has attempted to verify that the information in this document is accurate and complete, some typographical or technical errors may exist. The recipient of this document is solely responsible for all decisions relating to or use of the information provided herein.

The information contained in this publication is effective as of the publication date below and is subject to change without notice.

This publication contains proprietary information that is protected by copyright. All rights are reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, or translated into another language, without the prior written consent of Deltek, Inc.

This edition published August 2024.

© Deltek, Inc.

Deltek's software is also protected by copyright law and constitutes valuable confidential and proprietary information of Deltek, Inc. and its licensors. The Deltek software, and all related documentation, is provided for use only in accordance with the terms of the license agreement. Unauthorized reproduction or distribution of the program or any portion thereof could result in severe civil or criminal penalties.

All trademarks are the property of their respective owners.

Contents

Overview	1
Analysis Cubes	1
Adding Custom Notes to This Guide.....	1
If You Need Assistance	2
Deltek Support Center.....	2
Access Deltek Support Center.....	3
Additional Documentation	3
Chapter 1: Analysis Cubes Prerequisites and Installation.....	4
Analysis Cubes Prerequisites.....	4
Microsoft SQL Server	4
Microsoft SQL Server Analysis Services	4
Microsoft SQL Server Integration Services.....	4
Active Directory Domain Environment.....	4
Microsoft SQL Server Availability Groups.....	4
Microsoft SQL Server Cluster	5
Scaling out your Analysis Cubes Deployment	5
PowerShell Installation.....	5
Usage of SSL in this Document.....	5
Microsoft SQL Server Edition Dependencies	5
Dimensions and Measures.....	5
Currency Exchange	6
Key Performance Indicators (KPIs)	6
Microsoft SQL Server: Important Information.....	6
Multi-Dimensional Mode Required for Analysis Services	7
Database Compatibility Levels and Microsoft SQL Server Collation.....	7
Service Accounts and Permissions	7
Vantagepoint Incremental Refresh for Analysis Cubes	8
Chapter 2: Configure Analysis Cubes	10
Custom Reports Created in Vision.....	10
Renamed and Deleted Vision Fields	10
Summary List of Analysis Cubes Configuration Steps.....	10
Upgrade Vantagepoint Analysis Cubes from Earlier Versions	11
Rebuilding the Analysis Cubes.....	11

Delete Your Existing Data Warehouse and Data Cubes.....	12
Naming Conventions for Analysis Cube Components	13
Install Vantagepoint Analysis Cubes.....	14
PowerShell Analysis Cubes Deployment Script	14
Run the Script with the SetupCube Sub-Switch.....	15
Procedure for Basic Deployment.....	16
Procedure for Scalable Deployment.....	20
Procedure for SQL Server Cluster Deployment	24
Procedure for a SQL Availability Group Deployment	29
Procedure for a Silent Installation of Analysis Cubes.....	33
Procedure for Performing Multiple Silent Analysis Cube Updates	35
Procedure for Uninstalling Analysis Cubes.....	37
Validate that the Analysis Cubes Configuration Completed Successfully	38
Connect to Your Database Engine and Analysis Services	38
Confirm that the Vantagepoint Data Warehouse, Analysis Cubes, and SQL Server Agent Job Are Created	39
Validate that the Vantagepoint Analysis Cubes Are Populated	39
Validate that the Vantagepoint Analysis Cubes are Processed	39
Validate that the Vantagepoint Cubes can be Browsed	40
Add Your Domain Users to the User Accounts Analysis Cube Role	40
Script the Role	40
Multiple Vantagepoint Databases	41
Multiple Languages	41
Vantagepoint Analysis Cubes for Each Language	41
Creating Custom Reports in Excel Against the Different Language Data Cubes	41
Producing Reports in Both the English United States and English International Languages	43
Chapter 3: Troubleshoot Analysis Cubes Deployments	44
Problems and Solutions	45
Chapter 4: Ongoing Analysis Cubes Configuration Maintenance	46
System and Organization Label Changes in Vantagepoint	46
Analysis Cubes Configuration Changes in Vantagepoint	47
Rebuild Analysis Cubes	47
Update (Refresh) the Data Warehouse (DW) and the Vantagepoint Cubes	48
Rebuild Integration Services Packages	48
Chapter 5: Configure Analysis Cubes for Internet Accessibility	49
Install and Configure the OLAP Data Pump.....	49

Step 1: Get Binaries.....	49
Step 2: Create an Application Pool.....	50
Step 3: Create a Virtual Directory.....	50
Step 4: Configure Security for Excel Access over the Internet	51
Step 5: Select the Target Analysis Services Server.....	51
Step 6: Get it All Together.....	51
Configure the Data Source in Excel.....	53
Appendix A.....	54
Steps to Create a Scalable Analysis Cubes Deployment	54
Prerequisites for Scalability	56

Overview

This guide provides instructions on how to install and configure the Analysis Cubes. These instructions apply for both new Analysis Cubes installations and upgrades from earlier versions.


Analysis Cubes

Analysis Cubes provides you with a Vantagepoint project data cube and a general ledger data cube from which you create custom reports with Microsoft Excel®, or with any business intelligence tool that supports SQL Server Analysis Services OLAP cubes.

Adding Custom Notes to This Guide

If you would like to add custom notes to this guide that are specific to your company, Adobe® Reader® X provides this ability. If you do not already use Adobe Reader X, you can download it [here](#) free from Adobe.

To add a custom note using Adobe Reader X, complete the following steps:

1. On the Reader toolbar, click **Comment** at the far right.
2. In the **Annotations** pane that displays, click  **Sticky Note**. The cursor changes to match the button.
3. Position the cursor at the location in the guide where you want the note to appear, and click. A note icon is inserted at the location and a text box pops up.
4. Enter your information in the text box.
5. Continue adding notes as needed.
6. Save the document.

Note: Deltek recommends that you save the document to a slightly different filename so as to keep the original from being overwritten.

When reading the document, cursor over a note icon to see the information. Double-click a note icon to edit the information.

If You Need Assistance

If you need assistance installing, implementing, or using Vantagepoint, Deltek makes a wealth of information and expertise readily available to you.

For over 30 years, Deltek has maintained close relationships with client firms, helping with their problems, listening to their needs, and getting to know their individual business environments. A full range of customer services has grown out of this close contact, including the following:

- Extensive self-support options through the Deltek Support Center.
- Phone and email support from Customer Care analysts
- Technical services
- Consulting services
- Custom programming
- Classroom, on-site, and Web-based training

Attention: Find out more about these and other services from the Deltek Support Center.

Deltek Support Center

The Deltek Support Center is a support Web portal for Deltek customers who purchase an Ongoing Support Plan (OSP).

The following are some of the many options that the Deltek Support Center provides:

- Search for product documentation, such as release notes, install guides, technical information, online help topics, and white papers
- Ask questions, exchange ideas, and share knowledge with other Deltek customers through the Deltek Support Center Community
- Access Cloud-specific documents and forums
- Download the latest versions of your Deltek products
- Search Deltek's knowledge base
- Submit a support case and check on its progress
- Transfer requested files to a Customer Care analyst
- Subscribe to Deltek communications about your products and services
- Receive alerts of new Deltek releases and hot fixes
- Initiate a Chat to submit a question to a Customer Care analyst online

Attention: For more information regarding Deltek Support Center, refer to the online help available from the Web site.

Access Deltek Support Center

To access the Deltek Support Center:

1. Go to <https://deltek.custhelp.com>.
2. Enter your Deltek Support Center **Username** and **Password**.
3. Click **Login**.

Note: If you forget your username or password, you can click the **Need Help?** button on the login screen for help.

Additional Documentation

The following table lists additional related Deltek documentation that is available for this release. These documents are available for download from the Deltek Support Center.

Document Name	Description
Deltek Vantagepoint 7.0 Release Notes	These release notes contain pre-installation information, database changes, and a summary of enhancements and software issues resolved in Vantagepoint.
Deltek Vantagepoint 7.0 Installation and Maintenance Guide	This guide explains how to install Vantagepoint on your servers and other advanced configuration options that you might consider.
Deltek Vantagepoint 7.0 Analysis Cubes Content and Functionality Overview	This guide provides information on dimensions and measures for Project and General Ledger data cubes.
Deltek Vantagepoint 7.0 Custom Reports and Microsoft SQL Server Reporting Services	This guide provides instructions to create, deliver, and generate Vantagepoint custom reports with Microsoft SQL Server Reporting Services and its report writing tools.
Deltek Vantagepoint 7.0 Settings and Configuration	This guide explains the available configuration options for Vantagepoint, including settings for security, Vantagepoint Intelligence, and Analysis Cubes.

Chapter 1: Analysis Cubes Prerequisites and Installation

Analysis Cubes Prerequisites

The following prerequisites must be met before you configure and use Vantagepoint Analysis Cubes.

Microsoft SQL Server

- You must have a supported version of Microsoft SQL Server installed.

Note: The SQL Native Client (SNAC or SQLNCLI11) is no longer included by default starting with Microsoft SQL 2022. You need to install the SQL Native Client manually if you are using Microsoft SQL 2022 or a newer version.

- The Standard edition or Enterprise edition of SQL Server must be installed. These editions provide you with the required SQL Server Analysis Services. The SQL Edition checks have been updated to include the new core-based SQL licensing models.
- For a full list of Microsoft SQL Server releases (R), service packs (SP), and cumulative updates (CU) that Vantagepoint supports, see the Deltek Product Support Compatibility Matrix. You can download this at the Deltek Support Center.

Note: Service packs and Cumulative Updates for Microsoft SQL Server that Vantagepoint supports must be installed after Analysis Services is installed. If you already installed the update and you still need to install Analysis Services, install Analysis Services, and then reinstall the service pack.

Microsoft SQL Server Analysis Services

You must have Microsoft SQL Server Analysis Services (a component of SQL Server) installed. Vantagepoint only supports the Multidimensional mode (not the Tabular mode).

Microsoft SQL Server Integration Services

You must have SQL Server Integration Services installed. This is a shared component of the SQL Server.

Active Directory Domain Environment

You must have an Active Directory domain environment. Your Analysis Cubes clients and database server must be members of the domain.

Microsoft SQL Server Availability Groups

If you are deploying Vantagepoint Analysis Cubes configured with Microsoft SQL Server Availability Groups, you must install and configure Analysis Cubes against the Primary Node, to support failover scenarios. For more information, see the chapter on Availability Groups in the *Deltek Vantagepoint*

Installation and Configuration Guide and [Procedure for a SQL Availability Group Deployment](#), in this document.

Microsoft SQL Server Cluster

If you are deploying Vantagepoint Analysis Cubes to an SQL Server Cluster configuration, you must install and configure Analysis Cubes against the current Active Cluster Node, to support failover scenarios. For more information, see [Procedure for SQL Server Cluster Deployment](#) in this document.

Scaling out your Analysis Cubes Deployment

A default configuration of Analysis Cubes creates all components—Data Warehouse, Integration Services packages (ETL logic), and the Analysis Cubes—on the same server hosting your Vantagepoint database. You can set up your configuration such that the Data Warehouse, Integration Services Packages (ETL Logic), and Analysis Cubes exist on one or two different servers, thus freeing up the primary database server from the resource-intensive tasks of refreshing the Analysis Cubes data. This configuration also requires additional SQL Server licenses. The process that you use to create a scalable analysis cubes configuration is outlined in [Procedure for Scalable Deployment](#) and [Appendix A](#) of this document.

PowerShell Installation

If you are familiar with Deltek Vision Analysis Cubes, you know that the cubes were deployed using the Deltek Vision Resource Kit directly on the database server. With Vantagepoint, the cubes are deployed using the PowerShell deployment scripts (the same scripts used to install Vantagepoint), run from your Vantagepoint web server. The same requirements that apply when using PowerShell to install Vantagepoint are required for deploying the cubes. For more information, see the *Deltek Vantagepoint Installation and Configuration Guide*.

Note: Deltek provides OLAP (online analytical processing) services to assist you with the installation, configuration, and optimization of your Analysis Cubes. These services consist of consulting, web conferencing and training, installation guides, and reporting assistance. For more information, contact your Deltek account manager at accountmanager@deltek.com.

Usage of SSL in this Document

SSL is a term commonly used when referring to both Secure Sockets Layer technology and its successor, Transport Layer Security (TLS). Although you may see references to SSL in this guide and in the application's user interface, all Deltek applications use current TLS protocols to provide protected connections between web servers and web browsers.

Microsoft SQL Server Edition Dependencies

Some Analysis Cubes functionality works only if you use Microsoft SQL Server Enterprise Edition. If you are using the Standard edition, the following items are not included in the Analysis Cubes and Vantagepoint because the Standard Edition does not support semi-additive measures.

Dimensions and Measures

The following dimensions and measures are not included in the data cubes if you use SQL Server Standard Edition.

Dimension and Measure	Description
Presentation Currency	All the dimensions in the Presentation Currency dimension group in the Project and General Ledger data cubes.
Accounts Receivable Trending	All the measures in the AR Trending measure group (including the measures in the Multicurrency subfolder) in the Project data cube.
Days Sales Outstanding (DSO)	<ul style="list-style-type: none"> The DSO 90 and DSO 360 measures in the Accounts Receivable measure group in the Project data cube. The DSO 90 in Billing Currency and DSO 360 in Billing Currency measures in the Multicurrency folder in the Accounts Receivable group. The DSO 90 in Project Currency and DSO 360 in Project Currency measures in the Multicurrency folder in the Accounts Receivable group.
Days Work-In-Progress Outstanding (DWO)	<ul style="list-style-type: none"> The DWO 90 and DWO 360 measures in the Unbilled folder in the Values group in the Project data cube. The DWO 90 in Billing Currency and DWO 360 in Billing Currency measures in the Unbilled – Multicurrency folder in the Values group in the Project data cube. The DWO 90 in Project Currency and DWO 360 in Project Currency measures in the Unbilled – Multicurrency folder in the Values group in the Project data cube.

Currency Exchange

The Currency Exchange tab in Vantagepoint does not display if you use SQL Server Standard Edition.

Key Performance Indicators (KPIs)

The following Deltek-provided KPIs are not available if you use SQL Server Standard Edition:

- DSOTargetPrincipal
- DSOTargetOrg1
- DSOTargetProjectManager
- DSOTargetNoDimension
- DWOTargetPrincipal
- DWOTargetOrg1
- DWOTargetProjectManager
- DWOTargetNoDimension

Microsoft SQL Server: Important Information

The following information applies for all supported editions for the core database and Analysis Services requirements of Vantagepoint.

Multi-Dimensional Mode Required for Analysis Services

Analysis Services support several modes of installation, multi-dimensional, tabular (default in SQL 2017 and above) and PowerPivot. Vantagepoint only supports the multi-dimensional mode. If you have installed Analysis Services in either of the other modes, you need to uninstall Analysis Services and then reinstall in the required configuration. You will also need to reinstall the current SQL Server Cumulative Update. The PowerShell installation will validate the correct configuration.

Database Compatibility Levels and Microsoft SQL Server Collation

Database Compatibility Level

The Data Warehouse (DW) database will be created using the Compatibility Level of the Model database, which should match the version of SQL Server. You should ensure that the Compatibility Level of your Vantagepoint database matches the Data Warehouse database. You can validate the Compatibility Level on the Options page of the Database properties, using SQL Server Management Studio.

SQL Server Collation

The Data Warehouse (DW) database will be created using the Collation of the Vantagepoint database. This may or may not match the SQL Server Collation settings. The Analysis Services Database will be based on the Collation of the Analysis Server. If you receive “Cannot resolve collation conflict” errors during the SQL Agent refresh job processing, ensure that the Collation settings of the Vantagepoint database, Data Warehouse, and Analysis Services match. You can validate the Collation settings of the SQL Server databases on the Options page of the Database properties using SQL Server Management Studio. You can validate the Analysis Services Collation settings on the Language/Collation page of the Analysis Services properties using SQL Server Management Studio.

Service Accounts and Permissions

You can use domain based service accounts for the SQL Server services or use the default service accounts (<https://docs.microsoft.com/en-us/sql/database-engine/configure-windows/configure-windows-service-accounts-and-permissions?view=sql-server-ver15>). All service accounts used with Analysis Cubes must be entered in the form “Domain\User”, not “user@domain.com” as this format is not compatible with SQL Server domain logins.

Vantagepoint Process Server Service Account

The Vantagepoint Process Server service account must be a domain account and have rights to the Vantagepoint database, the data warehouse database, the Analysis Cube database and must also be a member of the SQL Agent User Role. The PowerShell installation will automatically grant the required rights. Specifically, the installation creates a SQL Server Credential (SQLAgentProxyCredential_CubeRefresh_<server>) for the Process Server service account and also a SQL Agent Proxy (SQLAgentProxy_CubeRefresh_<server>). The SQL Server Credential is needed to run the Proxy, which in turn, runs the SQL Agent Refresh job. The purpose of the Credential and Proxy objects is to grant the minimum necessary rights to the Process Server service account.

During installation, if you receive an error message indicating that the Process Server service account was not added to the SQLAgentUserRole, complete these steps to manually grant the rights to the user account:

1. Open the SQL Server Management Studio and connect to your database server/instance.
2. Navigate to **Security » Logins** and locate the SQL Login user account.
3. Right-click the user account and select **Properties**.

4. Click the User Mapping tab.
5. Select the **MSDB database** check box.
6. Scroll down the database role membership list to locate and select the **SQLAgentUserRole** check box.
7. Click **OK** to save the changes.

Vantagepoint Incremental Refresh for Analysis Cubes

Incremental refresh for Analysis Cubes allows the end user to schedule a refresh of only those cube data that were changed since the initial build and last full successful refresh. The advantage of the incremental refresh is refresh time for the cubes is much faster than a full refresh.

Note: Changes made to cube configuration, system labels, or user defined fields are not reflected when the Incremental Refresh job is run. In order for those changes to update the cube structure, the Full Refresh SQL Agent job needs to be executed.

To schedule an incremental refresh:

1. In the Vantagepoint navigation pane, go to **Settings » General » Analysis Cubes**.
2. In the Refresh tab, click **Refresh** to display the Schedule dialog box.
3. Select **Incremental Data Refresh** and fill in the other options.

Important: The **Incremental Data Refresh** option is disabled if the cubes labels or measurements are changed (*path to labels / analysis cubes*). A message is displayed to inform the end user that the labels need to be applied before incremental refresh is available again.

4. Click **Schedule**.

Note: If the password for the Process Server service account changes you must also update the password in the SQL Agent Credential object in **SSMS » Database Engine » Security » Credentials** or with the following SQL statement:

```
ALTER CREDENTIAL <CredentialName> WITH IDENTITY = '<ProcessServerServiceAccount>',
SECRET = '<new_password>'
```

The error you will receive in SQL Agent Job History if the password is not update is "Error authenticating proxy <service_account>...The user name or password is incorrect."

Reconfigure the Process Server Service Account to Run as a Domain Account

You can modify the Deltek Vantagepoint Process Server service account either using the PowerShell deployment script `SetServiceAccounts` switch or by changing the account directly in the Windows Services application.

To reconfigure the Process Server service account to run as a domain account using the PowerShell deployment scripts:

1. Refer to the *SetServiceAccounts switch* in the Deltek Vantagepoint Installation and Maintenance Guide

To reconfigure the Process Server service account to run as a domain account using the Windows Services application:

1. On the Vantagepoint web and/or dedicated process server, open the Services application under Administrative Tools.
2. In the list of services, locate the Deltek Vantagepoint Process Server <version> service.
3. Right-click the Deltek Vantagepoint Process Server <version> service and click **Properties**.
4. On the Log On tab of the Properties dialog box:
 - If the service is running as a domain account, no changes are necessary.
 - If the service is not running as a domain account, select the **This account:** option, and in the **Account Name** field, enter a valid domain username in the form of <Domain>\<Username>.
5. Enter and confirm the password for the domain account.
6. Restart the service when you are prompted.

In order for the Process Server to function properly, the service account used must be a member of the local Administrators Group.

Chapter 2: Configure Analysis Cubes

You must complete the steps in this chapter to configure your database server before you can use Analysis Cubes to create custom reports.

Custom Reports Created in Vision

The following information applies if you created custom reports with Vision Analysis Cubes 7.6 and you are upgrading to Vantagepoint.

Renamed and Deleted Vision Fields

If you have custom reports in which a Vision field name was renamed, the renamed field is automatically removed from your report. You must re-add the new field name to the report. Vision fields that were deleted from the Vantagepoint are automatically removed from your reports. This includes Opportunity information that now exists in Projects, or Vendor information that now is part of Firms.

Attention: For more information on database changes are located in the [Links](#) section of the [Deltek Vantagepoint Release Notes](#). The linked [Database Changes](#) webpage provides a list of renamed and deleted fields in the "Removed Columns" and "Removed Tables" subsections.

Summary List of Analysis Cubes Configuration Steps

The following table lists the steps that are required to configure your database server for Analysis Cubes.

- For upgrade installations, start with Step 1.
- For new installations, start with Step 2.

The detailed instructions for each of the general configuration steps are included in the remaining sections of this chapter.

Step	Where to Perform	Description
1	Vantagepoint: Module Activation	If you purchased the Analysis Cubes module, activate it now so that setup can run.
2	Screen Designer form in Vantagepoint: <ul style="list-style-type: none"> ▪ In a hub, select Design in Other Actions or ▪ Settings » General » Screen Designer Settings » General » User Defined Components in the desktop application	<p>In Vantagepoint, select the user defined fields to include in the data cubes.</p> <p>See the Vantagepoint online Help for specific instructions.</p> <p>Note the following character limits for user defined field labels:</p> <ul style="list-style-type: none"> ▪ Less than 95 characters in length. ▪ No invalid characters. <p>During the installation process, a message shows user defined fields that do not pass these requirements.</p>
3	Vantagepoint Web Server	Install, or upgrade to the latest Vantagepoint version to ensure you have the most recent software.

Step	Where to Perform	Description
4	Vantagepoint Web Server	Run the –IntelligenceSetupOption SetupCube switch to deploy Analysis Cubes. After all prompts have been completed for your deployment scenario, the setup will run unattended. See Run the Script with the SetupCube Switch for details on deployment scenarios.
5	SQL Server Management Studio	Validate that the Analysis Cubes deployment completed successfully. See Confirm that the Vantagepoint Data Warehouse, Analysis Cubes, and SQL Server Agent Job Are Created for more information.
6	SQL Server Management Studio	Add Domain users that need access to Analysis Cubes to the Analysis Cubes Users Role. See Add Your Domain Users to the User Accounts Analysis Cube Role for more information.
7	SQL Server Management Studio	Script the Analysis Cube Roles so that there is no need to re-add your Domain users after an Analysis Cube rebuild. See Script the Role for more information.
8	Vantagepoint Web server or another server with a supported installation of IIS (Internet Information Services)	Optional: Configure Analysis Cubes for Internet Accessibility. See Chapter 5: Configure Analysis Cubes for Internet Accessibility for instructions.
	Vantagepoint Web Server	If you have multiple Vantagepoint databases, or you need to support cubes in different languages, you must set up data cubes for each database. Repeat the steps above to create additional data cubes.
	Vantagepoint Web Server or Analysis Cubes Application “Refresh” tab functions	Ongoing Maintenance: After you initially configure Analysis Cubes, any time that you modify system labels, user defined fields available for Analysis Cubes, or Analysis Cubes configuration settings in Vantagepoint, you must use the PowerShell deployment scripts to apply these changes. See Chapter 4: Ongoing Analysis Cubes Configuration Maintenance for more information.

Upgrade Vantagepoint Analysis Cubes from Earlier Versions

Rebuilding the Analysis Cubes

If you currently have Vision Analysis Cubes configured and deployed, you must deploy the Analysis Cubes in their entirety when you upgrade to Vantagepoint; there is no upgrade path. See [Delete Your Existing Data Warehouse and Data Cubes](#) for more information.

The following is a summary of the steps that you must perform to rebuild the Analysis Cubes data cubes after you upgrade Vantagepoint, including MR's (Maintenance Releases) that contain Analysis Cube updates and major releases (such as 4.0, 4.5, and so on).

Note: Not all MR's or major releases will include Analysis Cube updates. The Vantagepoint upgrade installation will alert you to any required post-installation Analysis Cube updates that you need to complete. Always refer to the Release Notes for details on the changes.

To rebuild the Analysis Cubes after you install a release or MR with cube-related changes:

8. Run the PowerShell installation on your Vantagepoint web server to upgrade Vantagepoint and the analysis cube components.
9. Run the – IntelligenceSetupOption SetupCube switch and when prompted choose the option to Rebuild Analysis Cubes for <database_name> - <language>

Delete Your Existing Data Warehouse and Data Cubes

If you are configuring Analysis Cubes for the first time, skip this step, and continue with the next section of this chapter.

The PowerShell script will detect whether Vision Analysis Cubes components exist on the database server. Deltek recommends that you remove the Vision application and all Analysis Cubes components before you deploy Vantagepoint Analysis Cubes.

The steps in this section explain how to:

- Uninstall the Deltek Vision application from the database server
- Remove the Data warehouse database
- Remove the SQL Server Agent job, which refreshes the data
- Remove the Analysis Services database

Naming conventions for the Analysis Cube components are as follows:

- Data warehouse database name: <Vision database>DW. For example, "VisionDemo76DW" in the example below.
- SQL Server Agent Job: Refresh <Vision database> DW and Cubes. For example, "Refresh VisionDemo76 DW and Cubes" in the example below.
- Analysis Services database: Deltek Vision Analysis - <Vision Database>

To uninstall Deltek Vision from the database server:

1. Uninstall the Deltek Vision application from **Control Panel » Programs and Features » Uninstall a Program** or, **Settings » Apps** (depending on your operating system).
2. Remove the Vision ETL Environment Variables:
 - a. Click the **Start** button and then click **Run**.
 - b. Enter 'sysdm.cpl **SystemProperties**' (without the quotation marks).
 - c. Click the Advanced tab and then click the **Environment Variables** button.
 - d. Under System Variables, locate the following two lines and click the **Delete** button for each of them:
 - VisionETL_Configuration
 - VisionETL_Root_Dir
 - e. Reboot the computer

To delete the Analysis Cubes data warehouse database, the SQL Agent job, and the Analysis Services database:

1. Connect to the Database Engine using SQL Server Management Studio.
2. Expand the **Databases** folder.
3. Right-click the data warehouse database and then click **Delete**.
4. Expand the SQL Server Agent folder, and then expand the **Jobs** folder.
5. Right-click the SQL Agent refresh job and then click **Delete**.
6. Connect to Analysis Services using SQL Server Management Studio.
7. Expand the **Databases** folder.
8. Right-click the Analysis Services database and then click **Delete**.

Naming Conventions for Analysis Cube Components

The naming convention of the Vantagepoint **Data Warehouse Database** is shown below, where <database> is the name of your Vantagepoint database.

Language Specified in the Language Field	Data Warehouse Database Name
English (United States)	<database>DW
English (International)	<database>DW_en-GB
French (Canada)	<database>DW_fr-CA
French (France)	<database>DW_fr-FR
Spanish (International)	<database>DW_es-ES
Dutch (Netherlands)	<database>DW_nl-NL
German (Germany)	<database>DW_de-DE
Portuguese (Brazil)	<database>DW_pt-BR

The naming conventions for the Vantagepoint **SQL Agent Refresh Jobs** is shown below where <database> is the name of your Vantagepoint database.

Language Specified in the Language Field	SQL Agent Refresh Jobs Name
English (United States)	Full Refresh <database>_en-US DW and Cubes
English (International)	Full Refresh <database>_en-GB DW and Cubes
French (Canada)	Full Refresh <database>_fr-CA DW and Cubes
French (France)	Full Refresh <database>_fr-FR DW and Cubes
Spanish (International)	Full Refresh <database>_es-ES DW and Cubes

Language Specified in the Language Field	SQL Agent Refresh Jobs Name
Dutch (Netherlands)	Full Refresh <database>_nl-NL DW and Cubes
German (Germany)	Full Refresh <database>_de-DE DW and Cubes
Portuguese (Brazil)	Full Refresh <database>_pt-BR DW and Cubes

The naming convention of the Vantagepoint **Analysis Database** is shown below where <database> is the name of your Vantagepoint database.

Language Specified in the Language Field	Analysis Database Name
English (United States)	Deltek Vantagepoint Analysis - <database>
English (International)	Deltek Vantagepoint Analysis - <database>_en-GB
French (Canada)	Deltek Vantagepoint Analysis - <database>_fr-CA
French (France)	Deltek Vantagepoint Analysis - <database>_fr-FR
Spanish (International)	Deltek Vantagepoint Analysis - <database>_es-ES
Dutch (Netherlands)	Deltek Vantagepoint Analysis - <database>_nl-NL
German (Germany)	Deltek Vantagepoint Analysis - <database>_de-DE
Portuguese (Brazil)	Deltek Vantagepoint Analysis - <database>_pt-BR

Install Vantagepoint Analysis Cubes

When you run the PowerShell installation script on your Vantagepoint web server to install or upgrade your Vantagepoint software, the script components to install Vantagepoint Analysis Cubes are installed and updated automatically. After these are installed, a system administrator uses the - IntelligenceSetupOption SetupCube switch of the PowerShell installation to configure Analysis Cubes.

Note: You always run the PowerShell installation from the Vantagepoint web server, not the database server.

PowerShell Analysis Cubes Deployment Script

You use the PowerShell script to:

- Check that you have all the prerequisites installed.
- Create and configure the Vantagepoint data warehouse, SQL Agent refresh jobs and the Analysis Cubes.
- Apply system labels to the Analysis Cubes.
- Apply the Analysis Cube configurations (KPIs, user defined fields, and so on) to the cubes.

- Populate the data warehouse and cubes with data from your Vantagepoint database.

If you have Vantagepoint installed on more than one tier, you must run the PowerShell script from the Vantagepoint web server; the PowerShell script will not run on any other Vantagepoint tier.

You will need the following information in order to complete the Analysis Cube Deployments:

Prerequisite Information	Notes
Ensure the Vantagepoint Analysis Cubes module has been activated	Verify in Settings » General » Modules .
Know the type of deployment you are using	Basic, Scalable, Availability Group, or Cluster
Know the type of setup you want to use	Interactive or Silent
Know the SQL Server Edition being used	Enterprise or Standard Edition is supported for production use. The Developer Edition is supported for testing purposes only.
Ensure all required services are running	SQL Integration Services, SQL Database Engine, SQL Analysis Services, and SQL Server Agent.
Ensure Analysis Services is installed in the Multidimensional mode	Tabular and PowerPivot modes are not supported.
Weblink Password	
Vantagepoint Application User account and password (non-Windows Integrated) that has access to the Analysis Cubes application in Vantagepoint. As of Vantagepoint 4.5.2, a Windows Integrated login can be used.	Log in to Vantagepoint as the user and ensure that you can access Settings » General » Analysis Cubes .
Process Server service account Password	
The language for which you want to deploy Analysis Cubes.	If you are deploying multiple language, run the deployment again for each language.

Run the Script with the SetupCube Sub-Switch

Use the PowerShell script, DeltekVantagepoint.ps1, with the - IntelligenceSetupOption SetupCube switch to install Vantagepoint Analysis Cubes. The following deployment scenarios are supported:

- Deploy Vantagepoint Analysis Cubes to the same server as your Vantagepoint database, a basic deployment. For more information, see [Procedure for Basic Deployment](#).
- Deploy Vantagepoint Analysis Cubes in a Scalable configuration (requires 1 or 2 additional SQL Servers with appropriate licensing). For more information, see [Procedure for Scalable Deployment](#) and [Appendix A](#).

- Deploy Vantagepoint Analysis Cubes when your Vantagepoint database is part of a SQL Server Availability Group. For more information, see [Procedure for a SQL Availability Group Deployment](#) and the *Advanced Administration Topics* section of the *Deltek Vantagepoint Installation and Maintenance Guide*.
- Deploy Vantagepoint Analysis Cubes when your Vantagepoint database is part of a SQL Server Failover Cluster. For more information, see [Procedure for SQL Server Cluster Deployment](#).
- Deploy multiple instances of Vantagepoint Analysis Cubes for different databases or for different languages supported by Vantagepoint. For more information, see [Multiple Vantagepoint Databases](#) and [Multiple Languages](#).
- Deploy Vantagepoint Analysis Cubes in a Silent setup. Silent setup is only supported for basic deployments. It is also possible to run multiple Analysis Cube actions (deploy, rebuild, reapply system labels or reapply cube configurations) using the `DeltekVantagepointSilentInstallWrapper.ps1` script. For more information, see [Procedure for a Silent Installation of Analysis Cubes](#) and [Procedure for Performing Multiple Silent Analysis Cube Updates](#).
- Uninstall Deltek Vantagepoint Analysis Cubes for a specific database/language combination after deployment. For more information, see [Procedure for Uninstalling Analysis Cubes](#).

Note: You run the `SetupCube` sub-switch as part of the regular Vantagepoint deployment scripts and you always run it from the Vantagepoint web server.

Procedure for Basic Deployment

To run the script with the `SetupCube` sub-switch for a basic deployment of Analysis Cubes:

1. From the installation directory `Scripts` folder, enter `.\DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube`.
 2. When prompted, enter your Deltek Support username and password.
- The script checks prerequisites, verifies your access to Deltek Vantagepoint, checks your IIS prerequisites, and then displays the message:

```
-----
Vantagepoint – Analysis Cubes Setup
-----
```

Analysis Cube setup must be run from the Primary web/application server.
TLS 1.2 changes are required on all servers. TLS 1.0 and SSL 2.0/3.0 must be disabled.

Additionally, you will need an application login to save cube configurations. This can be a Vantagepoint login or a Windows Integrated login if your Vantagepoint application is configured for Windows Authentication.

Please read the installation documentation (that explains the information above in more detail) before you continue.

3. Select **Yes** to acknowledge that you have read the installation documentation.
 The script asks if you are deploying in a Scalable Cube configuration.
4. For a basic deployment enter **No** and then press ENTER.

The script asks if you are deploying to a SQL Server Cluster. If you answered Yes to either of these prompts, skip ahead to the next sections for specific steps and information specific to your chosen configuration.

5. Again, for a basic deployment enter **No** and press ENTER.

The script prompts you for the name of your Vantagepoint database server in the form (Server\Instance). The default value in brackets will be the database server entered during Vantagepoint setup, which is taken from the DeltekVantagepointSettings.xml file.

6. Either accept the default value, if correct, or enter the name of the database server that hosts your Vantagepoint database.

The script checks the database server name entered to determine if the name is an IP Address or Custom DNS, which are not compatible with the Analysis Cube setup and attempts to resolve the name to the hostname of the database server. If the hostname can be resolved it will be used for the setup, if not you will receive an error message and will need to make sure that DNS resolution is properly setup before setup can continue.

The script checks to determine if the database server entered is part of a SQL Server Availability Group. If it is, skip ahead to the next sections for specific steps and information specific to your chosen configuration.

The script runs through prerequisite checks:

- Verifies the SQL Server Edition and supported version. If SQL Standard Edition is detected, the following message is displayed:

Setup has identified SQL Standard Edition. Refer to the “Microsoft SQL Server Edition Dependencies” section in this document for limitations associated with this edition of SQL Server.

- Verifies that SQL Server services are installed and configured properly.
- Checks to ensure that Analysis Services is installed in the correct mode.

Analysis Services has three options for installation:

- Tabular mode (default in SQL Server 2017 and higher)
- Multidimensional mode (**required for Vantagepoint**)
- PowerPivot mode

To verify the mode installed, connect to Analysis Services with SQL Server Management Studio, right-click the server name, choose **Properties**, and check the **Server Mode property**. If the server mode property is not **Multidimensional**, you need to uninstall and reinstall Analysis Services in the correct mode.

- Checks to ensure that the user running setup has Sysadmin rights to the database server.
- Checks for Vision Analysis Cubes. Deltek recommends that you remove the Vision application and Analysis Cube configuration before you install Vantagepoint Analysis Cubes.

The script then prompts for the password for Weblink in order to provide a list of valid databases for which cubes can be deployed and then prompts you for the name of the database. The database must exist in Weblink and must be configured for the same database server entered in Step 6.

7. Enter the name of the Vantagepoint database and press ENTER. (If there is only one database it will be displayed in brackets as the default and you can press ENTER.)

The script checks to determine if the Vantagepoint database entered is part of a SQL Server Availability Group. If it is, skip ahead to the next sections for specific steps and information specific to your chosen configuration.

The script then prompts for a valid Vantagepoint application user and password. Setup needs this information or order to save cube configurations later in the script execution.

8. Enter the Vantagepoint username and confirm the password. If your Vantagepoint installation is using Windows Authentication and your domain login is configured as an integrated login in Vantagepoint, you can simply press ENTER.

The script then queries for the service account running the Deltek Vantagepoint Process Server and prompts for the password. The script retrieves the server name of the process server by first checking to see if a server is pinned to the Refresh Queue, next by checking to see if a process server name has been entered in the Application Server section of Process Server configuration and last by defaulting to the Vantagepoint web server where setup is being run. If you receive errors, check the Process Server and Refresh Queue configuration in Vantagepoint (**Settings » General » Process Servers**).

9. Enter the password for the Process Server service account and press ENTER.

The script verifies that the username and password are valid and that the account is a domain account. The script prompts you for the language to use to build the Analysis Cubes.

10. Enter the language code (for example, fr-CA) and press ENTER. If the language is English (United States), you can press ENTER, as it is the default language in brackets.

The script checks for the following:

- a. Checks cube hierarchies to ensure that they do not exceed 100 characters in length. System Labels are combined to create the hierarchies. If any hierarchies exceed 100 characters, the script identifies them and exits. You must modify the system labels to reduce these hierarchies to fewer than 100 characters.
- b. Checks the database to identify whether or not multiple currencies are enabled. If they are, the script alerts the user to ensure that the currency exchange process server job is scheduled.
- c. Checks the database for unsupported characters and long labels (95 characters and more) in User Defined Fields that have been marked as Available for Cubes. If any are found, each affected UDF is marked as not available for cubes and setup alerts the user running the script that they will need to be fixed.
- d. Checks for reserved words that create label conflicts when building the analysis cube. If these conflicts are detected, setup identifies the conflict and exits. You then need to modify the conflicting system label and re-run setup. Two checks are performed:
 - To see if any of the “Org” System Labels (1-5) are using the reserved word “Market”
 - To see if the WBS1 System Label is using the reserved word “Contract”
- e. Checks the database for duplicate system labels. If any are found, they are reported to the user running the script. Duplicate system labels may cause errors when creating the Analysis Services database. Duplicate system labels should be reviewed and/or changed before continuing setup.

At this point the script has all of the information needed to deploy Analysis Cubes. A prompt displays, asking if you want to continue. Verify the information and press ENTER to proceed.

11. If Analysis Cubes have already been deployed for the database/language combination entered, you are prompted with a list of choices.

- 1. Apply System Label updates.
 - 2. Apply Cube Configuration updates.
 - 3. Rebuild Analysis Cubes.
 - 4. Full (Data) Refresh of Analysis Cubes.
 - 5. Exit setup.
12. Enter the number of the option that you want to perform and press ENTER. For more information, see [Chapter 4: Ongoing Analysis Cubes Configuration Maintenance](#).

Setup Steps Performed by the Script

After you enter all of the information needed to run **DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube**, the script completes the following steps:

1. The script creates the Vantagepoint data warehouse database, <dbname>DW, deleting it first if it already exists.
2. The script modifies the Integration Services packages for use with your data source. The files are modified on the Vantagepoint web server and then copied, via PowerShell Remoting, to the database server. PowerShell Remoting must be enabled (see *Firewall Rules for PowerShell Remoting* in the *Deltek Vantagepoint Installation and Maintenance Guide* for more information). If the drive where Vantagepoint is installed on the web server does not exist on the database server, setup will create the Deltek Vantagepoint directory structure and copy the Integration Services Package files to the drive represented by the Program Files environment variable (in PowerShell this is represented by \$env:ProgramFiles).
3. The script updates Analysis Cubes-specific tables and stored procedures in the Vantagepoint database. The script also checks to ensure that there are no unsupported characters and long labels (95 characters and more) in the User Defined Fields (UDF's) that are marked as Available for Cubes. If any are found, the script identifies these, marks those that are unavailable for cubes, and notifies the user running the script that these UDF's will need to be fixed.
4. The script creates the Full and Incremental SQL Agent Refresh Jobs and grants the necessary SQL Server permissions to execute these jobs. Part of this process includes assigning the necessary permissions and creating a SQL Server Credential for the Process Server service account and a SQL Agent Proxy, which is assigned as the owner of the Refresh jobs. This ensures the minimum rights for the Process Server service account to execute the SQL Agent jobs.
5. The script creates the Vantagepoint Analysis Cube database (including the specific system labels from your database), Deltek Vantagepoint Analysis - <dbname>_<language>, deleting it first if it already exists. User accounts that have been added to the User Accounts Role in the cube are backed up and will be restored when the Analysis Cube database is rebuilt.
6. If there are errors creating the Analysis Cube database, review the errors identified in the error message and then contact Deltek Support for assistance if necessary.
7. The script creates an administrator (Service Accounts Role) and user (User Accounts Role) roles in the Analysis Cube database and adds the SQL Agent Service account, Process Server service account and the IIS Application Pool Identity to the Service Accounts role. The script restores any user accounts that were backed up in Step 6.
8. After setup completes, add any users to the User Accounts Role that need direct access to the cube via Excel for creating Pivot Table reports.

9. The script starts the Full Refresh SQL Agent job, which populates the data warehouse and Analysis Cubes with data from your Vantagepoint database. The Full Refresh may take a while to complete, depending on the size of your database. The job status updates every 30 seconds.
10. If there are errors in the refresh job, you can view the log using the steps below:
 - a. Open SQL Server Management and connect to your SQL Server instance.
 - b. Expand **(+) SQL Server Agent**.
 - c. Expand **(+) Jobs**.
 - d. Right-click the **Full Refresh <database>_<language> DW and Cubes** job and then select **Properties**.
 - e. Select the **Steps** page, select Step 2, and then click the **Edit** button.
 - f. Click the **Advanced** page and then click the **View** button.

If there is no log displayed: Close the **Property** pages, right-click the **Full Refresh** job again, select **View History**, locate the error identified with a red X, and then review the log message in the bottom pane. Contact Deltek Support if you need assistance.
11. When the Full Refresh job has completed, setup writes a log to the Vantagepoint\logs\<date_timestamp> folder.
12. If this is the first time that Analysis Cubes setup has been run, the script will Save the Analysis Cube configurations to the Vantagepoint database.
13. The script then applies User Defined Fields (marked for use in Analysis Cubes), User Defined Calculated Measures, Filters, and KPI's to the Analysis Cubes database.
14. The script processes the Analysis Cubes and checks the setup log for errors.

Procedure for Scalable Deployment

To run the script with the SetupCube sub-switch for a Scalable deployment of Analysis Cubes:

1. From the installation directory Scripts folder, enter **.\DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube**.
2. When prompted, enter your Deltek Support username and password.

The script checks prerequisites, verifies your access to Deltek Vantagepoint, checks your IIS prerequisites, and then displays the message:

```
-----
Vantagepoint – Analysis Cubes Setup
-----
```

**Analysis Cube setup must be run from the Primary web/application server.
TLS 1.2 changes are required on all servers. TLS 1.0 and SSL 2.0/3.0 must be disabled.**

Additionally, you will need an application login to save cube configurations. This can be a Vantagepoint login or a Windows Integrated login if your Vantagepoint application is configured for Windows Authentication.

Please read the installation documentation (that explains all above in more detail) before continuing.

3. Select **Yes** to acknowledge that you have read the installation documentation.

The script displays the following message:

Vantagepoint Analysis Cubes are supported in a scalable configuration. Please review the Vantagepoint Analysis Cubes Installation and Configuration Guide for more information.

The script asks if you are deploying in a Scalable Cube configuration.

4. For a Scalable deployment enter **Yes** and press ENTER.

The script displays the following message:

A Scalable Cube configuration can be deployed in either a 2-tier or 3-tier configuration. The Vantagepoint database will always be on its own server. For a 2-tier configuration you will enter the same server name for both the DW and Analysis Services prompts.

The script prompts for the name of the database server.

5. Either accept the default value if correct or enter the name of the server that hosts the Vantagepoint transaction database press ENTER.

The script checks the database server name entered to determine if the name is an IP Address or Custom DNS, which are not compatible with the Analysis Cube setup and attempts to resolve the name to the hostname of the database server. If the hostname can be resolved it will be used for the setup, if not you will receive an error message and will need to make sure that DNS resolution is properly setup before setup can continue.

The script prompts for the name of the Data Warehouse server.

6. Enter the name of the server that will host the Data Warehouse components and press ENTER.

The same IP Address / Custom DNS check (above) is made for the Data Warehouse server entered.

The script prompts for the name of the Analysis Services server.

Enter the name of the server that will host the Analysis Services components and press ENTER. The same IP Address / Custom DNS check (above) is made for the Analysis Services server entered.

The script checks to determine if the database server entered is part of a SQL Server Availability Group. If it is, skip ahead to the next sections for specific steps and information specific to your chosen configuration.

The script runs through a variety of prerequisite checks:

- Verifies the SQL Server Edition and supported version. If the SQL Standard Edition is detected, the following message is displayed:

Setup has identified SQL Standard Edition. Please refer to the Vantagepoint <documentation> “Microsoft SQL Server Edition Dependencies” for limitations associated with this edition of SQL Server.

- Verifies that SQL Server services are installed and configured properly.

In a scalable configuration, domain delegation and SPNs (Service Principal Names) must be configured for the SQL Server service account on the DW Server. The script queries the SPNs configured for the SQL Server service account and displays them. If no SPNs are detected, the script indicates this and exits. Contact Deltek support if you need assistance.

- Checks to ensure that Analysis Services is installed in the correct mode.

Analysis Services has three options for installation:

- Tabular mode (default in SQL Server 2017 and higher)
- Multidimensional mode **(required for Vantagepoint)**

- PowerPivot mode

To verify the mode installed, connect to Analysis Services with SQL Server Management Studio, right-click the server name, choose **Properties**, and check the **Server Mode property**. If the server mode property is not **Multidimensional**, you need to uninstall and reinstall Analysis Services in the correct mode.

- Checks to ensure the user running setup has Sysadmin rights to the database server.
- Checks for Vision Analysis Cubes. Deltak recommends that you remove the Vision application and Analysis Cube configuration before you install Vantagepoint Analysis Cubes.

The script then prompts for the password for Weblink in order to provide a list of valid databases for which cubes can be deployed and then prompts you for the name of the database. The database must exist in Weblink and must be configured for the same database server entered in Step 6 above.

7. Enter the name of the Vantagepoint database and press ENTER. (If there is only one database it will be displayed in brackets as the default and you can press ENTER.)

The script checks to determine if the Vantagepoint database entered is part of a SQL Server Availability Group. If it is, skip ahead to the next sections for specific steps and information specific to your chosen configuration.

The script then prompts for a valid Vantagepoint application user and password. Setup needs this information in order to save cube configurations later in the script execution.

8. Enter the Vantagepoint username and confirm the password. If your Vantagepoint installation is using Windows Authentication and your domain login is configured as an integrated login in Vantagepoint, you can simply press ENTER. The script then queries for the service account running the Deltak Vantagepoint Process Server and prompts for the password. The script retrieves the server name of the process server by first checking to see if a server is pinned to the Refresh Queue, next by checking to see if a process server name has been entered in the Application Server section of Process Server configuration and last by defaulting to the Vantagepoint web server where setup is being run. If you receive errors, check the Process Server and Refresh Queue configuration in Vantagepoint (**Settings » General » Process Servers**).
9. Enter the password for the Process Server service account and press ENTER.

The script verifies the username and password are valid and that the account is a domain account. The script prompts you for the language to use to build the Analysis Cubes.

10. Enter the language code (for example, fr-CA) and press ENTER. If the language is English (United States), you can press ENTER, as it is the default language in brackets.

The script checks for the following:

- a. Checks cube hierarchies to ensure that they do not exceed 100 characters in length. System Labels are combined to create the hierarchies. If any hierarchies exceed 100 characters, the script identifies them and exits. You must modify the system labels to reduce these hierarchies to fewer than 100 characters.
- b. Checks the database to identify whether or not multiple currencies are enabled. If they are, the script alerts the user to ensure that the currency exchange process server job is scheduled.
- c. Checks the database for unsupported characters and long labels (95 characters and more) in User Defined Fields that have been marked as Available for Cubes. If any are found, each affected UDF is marked as not available for cubes and setup alerts the user running the script that they will need to be fixed.

- d. Checks for reserved words that create label conflicts when building the analysis cube. If these conflicts are detected, setup identifies the conflict and exits. You then need to modify the conflicting system label and re-run setup. Two checks are performed:
 - To see if any of the “Org” System Labels (1-5) are using the reserved word “Market”
 - To see if the WBS1 System Label is using the reserved word “Contract”
- e. Checks the database for duplicate system labels. If any are found, they are reported to the user running the script. Duplicate system labels may cause errors when creating the Analysis Services database. Duplicate system labels should be reviewed and/or changed before continuing setup.

At this point the script has all of the information needed to deploy Analysis Cubes and prompts if you want to continue. Verify the information entered and press ENTER to proceed.

11. If Analysis Cubes have already been deployed for the database/language combination entered, you are prompted with a list of choices.
 - 1. Apply System Label updates.
 - 2. Apply Cube Configuration updates.
 - 3. Rebuild Analysis Cubes.
 - 4. Full (Data) Refresh of Analysis Cubes.
 - 5. Exit setup
12. Enter the number of the option that you want and press ENTER. For more information on the options, see [Chapter 4: Ongoing Analysis Cubes Configuration Maintenance](#).

Setup Steps Performed by the Script

After you enter all of the information needed to run **DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube**, the script completes the following steps:

1. The script creates a SQL Server Linked Server on the DW server for the Vantagepoint database, which is needed to create the DW database.
2. The script creates the Vantagepoint data warehouse database, <databasename>DW, on the server designated as the DW server, deleting it first if it already exists.
3. The script modifies the Integration Services packages for use with your data source. The files are modified on the Vantagepoint web server and then copied, via PowerShell Remoting, to the DW server. PowerShell Remoting must be enabled (see *Firewall Rules for PowerShell Remoting* in the *Deltek Vantagepoint Installation and Maintenance Guide* for more information). If the drive where Vantagepoint is installed on the web server does not exist on the database server, setup will create the Deltek Vantagepoint directory structure and copy the Integration Services Package files to the drive represented by the Program Files environment variable (in PowerShell this is represented by \$env:ProgramFiles).
4. The script updates Analysis Cubes-specific tables and stored procedures in the Vantagepoint database. The script also checks to ensure that there are no unsupported characters and long labels (95 characters and more) in the User Defined Fields (UDF's) that are marked as Available for Cubes. If any are found, the script identifies these, marks these are unavailable for cubes and notifies the user running the PowerShell script that these UDF's will need to be fixed.
5. The script creates the Full and Incremental SQL Agent Refresh JobS on the DW server and grants the necessary SQL Server permissions to execute these jobs. Part of this process includes assigning permissions and creating a SQL Server Credential for the Process Server service account and a SQL Agent Proxy, which is assigned as the owner of the Refresh jobs. This

ensures the minimum rights for the Process Server service account to execute the SQL Agent jobs.

6. The script creates the Vantagepoint Analysis Cube database on the server designated as the Analysis Services server (including the specific system labels from your database), Deltek Vantagepoint Analysis - <dbname>_<language>, deleting it first if it already exists. User accounts that have been added to the User Accounts Role in the cube are backed up and will be restored when the Analysis Cube database is rebuilt.
7. If there are errors creating the Analysis Cube database, review the error log identified in the error message and contact Deltek Support for further assistance.
8. The script creates an administrator (Service Accounts Role) and user (User Accounts Role) roles in the Analysis Cube database and adds the SQL Agent Service account, Process Server service account and the IIS Application Pool Identity to the Service Accounts role. The script restores any user accounts that were backed up in Step 7.
9. After setup completes, add any users to the User Accounts Role that need direct access to the cube via Excel for creating Pivot Table reports.
10. The script starts the Full Refresh SQL Agent job, which populates the data warehouse and Analysis Cube with data from your Vantagepoint database. The Full Refresh may take a while to complete, depending on the size of your database. The job status updates every 30 seconds.
11. If there are errors in the refresh job, view the log using these steps:
 - a. Open SQL Server Management and connect to your SQL Server instance.
 - b. Expand **(+) SQL Server Agent**.
 - c. Expand **(+) Jobs**.
 - d. Right-click the **Full Refresh <dbname>_<language> DW and Cubes** job and select **Properties**.
 - e. Select the **Steps** page, select Step 2, and then click the **Edit** button.
 - f. Click the **Advanced** page and then click the **View** button.

If there is no log displayed: Close the **Property** pages, right-click the **Full Refresh** job again, select **View History**, locate the error identified with a red X, and then review the log message in the bottom pane. Contact Deltek Support if you need assistance.

When the Full Refresh job has completed, setup writes this log to the Vantagepoint\logs\<date_timestamp> folder.

12. If this is the first time that Analysis Cube setup has been run, the script will Save the Analysis Cube configurations to the Vantagepoint database.
13. The script applies User Defined Fields (marked for use in Analysis Cubes), User Defined Calculated Measures, Filters, and KPI's to the Analysis Cube database.
14. The script processes the Analysis Cube and checks the setup log for any errors.

Procedure for SQL Server Cluster Deployment

To run the script with the SetupCube sub-switch for a deployment of Analysis Cubes to a SQL Server Cluster:

1. From the installation directory Scripts folder, enter **.\DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube**.
2. When prompted, enter your Deltek Support username and password.

The script checks prerequisites, verifies your access to Deltek Vantagepoint, checks your IIS prerequisites, and then displays the message:

Vantagepoint – Analysis Cubes Setup

Analysis Cube setup must be run from the Primary web/application server.

TLS 1.2 changes are required on all servers. TLS 1.0 and SSL 2.0/3.0 must be disabled.

Additionally, you will need an application login to save cube configurations. This can be a Vantagepoint login or a Windows Integrated login if your Vantagepoint application is configured for Windows Authentication.

Please read the installation documentation (that explains all above in more detail) before continuing.

3. Select **Yes** to acknowledge that you have read the installation documentation.

The script asks if you are deploying in a Scalable Cube configuration.

4. For a SQL Cluster deployment enter **No** and press ENTER.
5. The script asks if you are deploying to a SQL Server Cluster.
6. For a SQL Cluster deployment enter **Yes** and press ENTER.

The script prompts you for the virtual cluster name of the SQL Server Cluster hosting the Vantagepoint database. The default value in brackets will be the database server entered during Vantagepoint setup, which is pulled from the DeltekVantagepointSettings.xml file.

Note: An error will occur if you use the server name of any node in the SQL Cluster. You must enter the virtual cluster name to continue.

7. Either accept the default value (if correct) or enter the virtual cluster name of the database server that hosts your Vantagepoint database.

The script checks to determine if the database server entered is part of a SQL Server Availability Group. If it is, skip ahead to the next sections for specific steps and information specific to your chosen configuration.

The script verifies your SQL Cluster configuration and, if needed, installs PowerShell Clustering tools.

The script runs through prerequisite checks:

- Verifies the SQL Server Edition and supported version. If the SQL Standard Edition is detected, the following message is displayed:
Setup has identified SQL Standard Edition. Please refer to the Vantagepoint <documentation> “Microsoft SQL Server Edition Dependencies” for limitations associated with this edition of SQL Server.
- Verifies that the SQL Server services are installed and configured properly.
- Checks to ensure that Analysis Services is installed in the correct mode.
Analysis Services has three options for installation:
 - Tabular mode (default in SQL Server 2017 and higher)
 - Multidimensional mode (**required for Vantagepoint**)

- PowerPivot mode

To verify the mode installed, connect to Analysis Services with SQL Server Management Studio, right-click the server name, choose **Properties**, and check the **Server Mode property**. If the server mode property is not **Multidimensional**, you need to uninstall and reinstall Analysis Services in the correct mode.

- Checks to ensure that the user running setup has Sysadmin rights to the database server.
- Checks for Vision Analysis Cubes. Deltek recommends that you remove the Vision application and Analysis Cube configuration before you install Vantagepoint Analysis Cubes.

The script then prompts for the password for Weblink in order to provide a list of valid databases for which cubes can be deployed and then prompts you for the name of the database. The database must exist in Weblink and must be configured for the same database server entered in Step 6 above.

8. Enter the name of the Vantagepoint database and press ENTER. If there is only one database it will be displayed in brackets as the default and you can press ENTER.

The script checks to determine if the Vantagepoint database entered is part of a SQL Server Availability Group. If it is, skip ahead to the next sections for specific steps and information specific to your chosen configuration.

The script then prompts for a valid Vantagepoint application user and password. Setup needs this information or order to save cube configurations later in the script execution.

9. Enter the Vantagepoint username and confirm the password. If your Vantagepoint installation is using Windows Authentication and your domain login is configured as an integrated login in Vantagepoint, you can simply press ENTER.

The script then queries for the service account running the Deltek Vantagepoint Process Server and prompts for the password. The script retrieves the server name of the process server by first checking to see if a server is pinned to the Refresh Queue, next by checking to see if a process server name has been entered in the Application Server section of Process Server configuration and last by defaulting to the Vantagepoint web server where setup is being run. If you receive errors, check the Process Server and Refresh Queue configuration in Vantagepoint (**Settings » General » Process Servers**).

10. Enter the password for the Process Server service account and then press ENTER.

The script verifies the username and password are valid and that the account is a domain account. The script prompts you for the language to use to build the Analysis Cubes.

11. Enter the language code (for example, fr-CA) and press ENTER. If the language is English (United States), you can press ENTER, as it is the default language in brackets.

The script checks for the following:

- a. Checks cube hierarchies to ensure that they do not exceed 100 characters in length. System Labels are combined to create the hierarchies. If any hierarchies exceed 100 characters the script identifies them and exits. You must modify the system labels to reduce these hierarchies to fewer than 100 characters.
- b. Checks the database to identify whether or not multiple currencies are enabled. If they are, the script alerts the user to ensure that the currency exchange process server job is scheduled.
- c. Checks the database for unsupported characters and long labels (95 characters and more) in User Defined Fields that have been marked as Available for Cubes. If any are found, each affected UDF is marked as not available for cubes and setup alerts the user running the script that they will need to be fixed.

- d. Checks for reserved words that create label conflicts when building the analysis cube. If these conflicts are detected, setup identifies the conflict and exits. You then need to modify the conflicting system label and re-run setup. Two checks are performed:
 - To see if any of the “Org” System Labels (1-5) are using the reserved word “Market”
 - To see if the WBS1 System Label is using the reserved word “Contract”
- e. Checks the database for duplicate system labels. If any are found, they are reported to the user running the script. Duplicate system labels may cause errors when creating the Analysis Services database. Duplicate system labels should be reviewed and/or changed before continuing setup.

At this point the script has all of the information needed to deploy Analysis Cubes and prompts if you want to continue. Verify the information entered and press ENTER to proceed.

12. If Analysis Cubes have already been deployed for the database/language combination entered, you are prompted with a list of choices.
 - 1. Apply System Label updates.
 - 2. Apply Cube Configuration updates.
 - 3. Rebuild Analysis Cubes.
 - 4. Full (Data) Refresh of Analysis Cubes.
 - 5. Exit setup
13. Enter the number of the option you want and press ENTER. For information about these options, see [Chapter 4: Ongoing Analysis Cubes Configuration Maintenance](#).

Setup Steps Performed by the Script

After you enter all of the information needed to run **DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube**, the script completes the following steps:

1. The script creates the Vantagepoint data warehouse database, <dbname>DW, deleting it first if it already exists.
2. The script modifies the Integration Services packages for use with your data source, specifically the virtual cluster name. The files are modified on the Vantagepoint web server and then copied, via PowerShell Remoting, to all nodes in the SQL Cluster. PowerShell Remoting must be enabled (see *Firewall Rules for PowerShell Remoting* in the *Deltek Vantagepoint Installation and Maintenance Guide* for more information). If the drive where Vantagepoint is installed on the web server does not exist on the database server, setup will create the Deltek Vantagepoint directory structure and copy the Integration Services Package files to the drive represented by the Program Files environment variable (in PowerShell this is represented by \$env:ProgramFiles).

The use of the virtual cluster name, and the copying of the Analysis Cubes files to all nodes that are part of the Cluster, ensures that the data refresh jobs will continue to run in the event of a failover, regardless of which cluster node is acting as the primary node.

3. The script configures the Integration Services packages to use the virtual cluster name in the configuration so that in the event of a Failover of the cluster, the SQL Agent Refresh Job will continue to run with no additional configuration needed.
4. The script updates Analysis Cube-specific tables and stored procedures in the Vantagepoint database. The script also checks to ensure that there are no unsupported characters and long labels (95 characters and more) in the User Defined Fields (UDF's) that are marked as Available for Cubes. If any are found, the script identifies these, marks these are unavailable for cubes and notifies the user running the PowerShell script that these UDF's will need to be fixed.

5. The script creates the Full and Incremental SQL Agent Refresh Jobs and grants the necessary SQL Server permissions to execute these jobs. Part of this process includes assigning the necessary permissions and creating a SQL Server Credential for the Process Server service account and a SQL Agent Proxy which is assigned as the owner of the Refresh jobs. This ensures the minimum rights for the Process Server service account to execute the SQL Agent jobs.
6. The script creates the Vantagepoint Analysis Cube database (including the specific system labels from your database), Deltek Vantagepoint Analysis - <dbname>_<language>, deleting it first if it already exists. User accounts that have been added to the User Accounts Role in the cube are backed up and will be restored when the Analysis Cube database is rebuilt.
7. If there are errors creating the Analysis Cube database, review the error log identified in the error message and contact Deltek Support for assistance.
8. The script creates an administrator (Service Accounts Role) and user (User Accounts Role) roles in the Analysis Cube database and adds the SQL Agent Service account, Process Server service account and the IIS Application Pool Identity to the Service Accounts role. The script restores any user accounts that were backed up in Step 7.
9. After setup completes, add any users to the User Accounts Role that need direct access to the cube via Excel for creating Pivot Table reports.
10. The script starts the Full Refresh SQL Agent job, which will populate the data warehouse and Analysis Cube with data from your Vantagepoint database. The Full Refresh may take a while to complete, depending on the size of your database. The job status updates every 30 seconds.
11. If there are errors in the refresh job, you can view the log:
 - a. Open SQL Server Management and connect to your SQL Server instance.
 - b. Expand **(+) SQL Server Agent**.
 - c. Expand **(+) Jobs**.
 - d. Right-click the **Full Refresh <dbname>_<language> DW and Cubes** job and select **Properties**.
 - e. Select the **Steps** page, select Step 2, and then click the **Edit** button.
 - f. Click the **Advanced** page and then click the **View** button.

If there is no log displayed: Close the **Property** pages, right-click the **Full Refresh** job again, select **View History**, locate the error identified with a red X, and then review the log message in the bottom pane. Contact Deltek Support if you need assistance.
12. When the Full Refresh job has completed, setup writes this log to the Vantagepoint\logs\<date_timestamp> folder.
13. If this is the first time that Analysis Cube setup has been run, the script saves the Analysis Cube configurations to the Vantagepoint database.
14. The script applies User Defined Fields (marked for use in Analysis Cubes), User Defined Calculated Measures, Filters, and KPI's to the Analysis Cube database.
15. The script processes the Analysis Cube and checks the setup log for any errors.

Procedure for a SQL Availability Group Deployment

To run the script with the SetupCube sub-switch for a SQL Availability Group deployment of Analysis Cubes:

1. From the installation directory Scripts folder, enter **.\DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube**.

2. When prompted, enter your Deltek Support username and password.

The script checks prerequisites, verifies your access to Deltek Vantagepoint, checks your IIS prerequisites, and then displays the message:

```
-----
Vantagepoint – Analysis Cubes Setup
-----
```

**Analysis Cube setup must be run from the Primary web/application server.
TLS 1.2 changes are required on all servers. TLS 1.0 and SSL 2.0/3.0 must be disabled.**

Additionally, you will need an application login to save cube configurations. This can be a Vantagepoint login or a Windows Integrated login if your Vantagepoint application is configured for Windows Authentication.

Please read the installation documentation (that explains all above in more detail) before continuing.

3. Select **Yes** to acknowledge that you have read the installation documentation.

The script asks if you are deploying in a Scalable Cube configuration.

4. For deployment to a SQL Availability Group, enter **No** and then press ENTER.

The script asks if you are deploying to a SQL Server Cluster.

5. Again, for deployment to a SQL Availability Group, enter **No** and then press ENTER.

The script prompts you for the name of your Vantagepoint database server in the form (Server\Instance). The default value in brackets will be the database server entered during Vantagepoint setup, which is pulled from the DeltekVantagepointSettings.xml file.

The Availability Group Listener Name should be used as the database server name.

6. Either accept the default value, if correct, or enter the Availability Group Listener Name as the server that hosts your Vantagepoint database.

The script checks to determine if the database server entered is part of a SQL Server Availability Group and whether the listener name was used. If the listener name was not used, the script displays the following message:

Setup has detected that the database server entered (<name of server entered>) is part of a SQL Server Availability Group but you have entered the physical server name not the Availability Group listener name. If your Vantagepoint database is part of an Availability Group, please exit setup and use the Availability group Listener Name as the database server. Setup will use the listener name for prerequisite checks. NOTE: The Weblink entry for your database, if part of an Availability Group, also needs to use the listener name (<Availability Group Listener Name>).

Note: When using Availability Groups, the listener name should be used. If the SQL Server used in the Weblink setup for your database does not match the name of the server entered during the Analysis Cube setup, setup will be unable to identify your database and setup cannot continue.

If your database is not part of the Availability Group configuration, setup can continue. Setup will verify the database configuration after the database name has been entered later in setup.

This message indicates that if your Vantagepoint database exists on a server that is part of an Availability Group, but the database itself is not part of an Availability Group, setup can continue.

The script runs through prerequisite checks:

- Verifies the SQL Server Edition and supported version. If the SQL Standard Edition is detected, the following message is displayed:

Setup has identified SQL Standard Edition. Please refer to the Vantagepoint <documentation> “Microsoft SQL Server Edition Dependencies” for limitations associated with this edition of SQL Server.

- Verifies that SQL Server services are installed and configured properly.
- Checks to ensure that Analysis Services is installed in the correct mode.

Analysis Services has three options for installation:

- Tabular mode (default in SQL Server 2017 and higher)
- Multidimensional mode **(required for Vantagepoint)**
- PowerPivot mode

To verify the mode installed, connect to Analysis Services with SQL Server Management Studio, right-click the server name, choose **Properties**, and check the **Server Mode property**. If the server mode property is not **Multidimensional**, you need to uninstall and reinstall Analysis Services in the correct mode.

- Checks to ensure that the user running setup has Sysadmin rights to the database server.
- Checks for Vision Analysis Cubes. Deltek recommends that you remove the Vision application and Analysis Cube configuration before you install Vantagepoint Analysis Cubes.

The script then prompts for the password for Weblink, in order to provide a list of valid databases for which cubes can be deployed, and then prompts you for the name of the database. The database must exist in Weblink and must be configured for the same database server entered in Step 6 above.

7. Enter the name of the Vantagepoint database and press ENTER. If there is only one database it will be displayed in brackets as the default and you can press ENTER.

The script checks to determine if the Vantagepoint database entered is part of a SQL Server Availability Group and if the listener name was used. If the database is part of an Availability Group and the listener name was not used, the following message is displayed:

Setup has detected your Vantagepoint database is configured in a SQL Server Availability Group but you have entered a server name (<name of server entered>), not the Availability Group listener name (<Availability Group Listener Name>). Setup will use the Availability Group listener in the configuration and will deploy the Data Warehouse and Analysis cubes to the PRIMARY Node (<name of Primary node>).

The script then prompts for a valid Vantagepoint application user and password. Setup needs this information or order to save cube configurations later in the script execution.

8. Enter the Vantagepoint user name and confirm the password. If your Vantagepoint installation is using Windows Authentication and your domain login is configured as an integrated login in Vantagepoint, you can simply press ENTER.

The script then queries for the service account running the Deltek Vantagepoint Process Server and prompts for the password. The script retrieves the server name of the process server by first checking to see if a server is pinned to the Refresh Queue, next by checking to see if a process server name has been entered in the Application Server section of Process Server configuration and last by defaulting to the Vantagepoint web server where setup is being run. If you receive errors, check the Process Server and Refresh Queue configuration in Vantagepoint (**Settings » General » Process Servers**).

9. Enter the password for the Process Server service account and then press ENTER.

The script verifies that the username and password are valid and that the account is a domain account. The script prompts you for the language to use to build the Analysis Cubes.

10. Enter the language code (for example, fr-CA) and press ENTER. If the language is English (United States), you can press ENTER, as it is the default language in brackets.

The script checks for the following:

- a. Checks cube hierarchies to ensure that they do not exceed 100 characters in length. System Labels are combined to create the hierarchies. If any hierarchies exceed 100 characters the script identifies them and exits. You must modify the system labels to reduce these hierarchies to fewer than 100 characters.
- b. Checks the database to identify if Multiple Currency is enabled and alerts the user to ensure that the schedule the currency exchange process server job.
- c. Checks the database for unsupported characters and long labels (95 characters and more) in User Defined Fields that have been marked as Available for Cubes. If any are found the UDF is marked as not available for cubes and alerts the user running the script that they will need to be fixed.
- d. Checks for reserved words that create label conflicts when building the analysis cube. If these conflicts are detected, setup identifies the conflict and exits. You then need to modify the conflicting system label and re-run setup. Two checks are performed:
 - a. To see if any of the “Org” System Labels (1-5) are using the reserved word “Market”
 - b. To see if the WBS1 System Label is using the reserved word “Contract”
- e. Checks the database for duplicate system labels. If any are found they are reported to the user running the script. Duplicate system labels may cause errors when creating the Analysis Services database. Duplicate system labels should be reviewed and/or changed before continuing setup.

At this point the script has all of the information needed to deploy Analysis Cubes and displays a prompt that asks if you want to continue.

11. Verify the information entered and press ENTER to proceed.
12. If Analysis Cubes have already been deployed for the database/language combination entered, you are prompted with a list of choices.
 - 1. Apply System Label updates.
 - 2. Apply Cube Configuration updates.

- 3. Rebuild Analysis Cubes.
 - 4. Full (Data) Refresh of Analysis Cubes.
 - 5. Exit setup
13. Enter the number of the option you want and press ENTER. Refer to the section [Chapter 4: Ongoing Analysis Cubes Configuration Maintenance](#) for more information on these options.

Setup Steps Performed by the Script

After you enter all of the information needed to run **DeltekVantagepoint.ps1 - IntelligenceSetupOption SetupCube**, the script completes the following steps:

1. The script creates the Vantagepoint data warehouse database, <databasename>DW on the Primary Node of the Availability Group, deleting it first if it already exists.
2. The script modifies the Integration Services packages for use with your data source. The files are modified on the Vantagepoint web server and then copied, via PowerShell Remoting, to the Primary Node of the Availability Group. PowerShell Remoting must be enabled (see *Firewall Rules for PowerShell Remoting* in the *Deltek Vantagepoint Installation and Maintenance Guide* for more information). If the drive where Vantagepoint is installed on the web server does not exist on the database server, setup will create the Deltek Vantagepoint directory structure and copy the Integration Services Package files to the drive represented by the Program Files environment variable (in PowerShell this is represented by \$env:ProgramFiles).
3. The script configures the Integration Services packages to use the Availability Group Listener name in the configuration so that in the event of a Failover, the SQL Agent Refresh Job will continue to run with no additional configuration needed.
4. The script updates the Analysis Cube-specific tables and stored procedures in the Vantagepoint database. The script also checks to ensure that there are no unsupported characters and long labels (95 characters and more) in the User Defined Fields (UDF's) that are marked as Available for Cubes. If any are found, the script identifies these, marks them as unavailable for cubes, and notifies the user running the PowerShell script that these UDF's will need to be fixed.
5. The script creates the Full and incremental SQL Agent Refresh Jobs on the Primary Node of the Availability Group and grants the necessary SQL Server permissions to execute these jobs. Part of this process includes assigning the necessary permissions and creating a SQL Server Credential for the Process Server service account and a SQL Agent Proxy which is assigned as the owner of the Refresh jobs. This ensures the minimum rights for the Process Server service account to execute the SQL Agent jobs.
6. The script creates the Vantagepoint Analysis Cube database on the Primary Node of the Availability Group (including the specific system labels from your database), Deltek Vantagepoint Analysis - <databasename>_<language>, deleting it first if it already exists. User accounts that have been added to the User Accounts Role in the cube are backed up and will be restored when the Analysis Cube database is rebuilt.
7. If there are errors creating the Analysis Cube database, review the error log identified in the error message and contact Deltek Support if you need assistance.
8. The script creates an administrator (Service Accounts Role) and user (User Accounts Role) roles in the Analysis Cube database and adds the SQL Agent Service account, Process Server service account and the IIS Application Pool Identity to the Service Accounts role. The script restores any user accounts that were backed up in Step 7.
9. After setup completes, add any users to the User Accounts Role that need direct access to the cube via Excel for creating Pivot Table reports.

10. The script starts the Full Refresh SQL Agent job, which populates the data warehouse and Analysis Cube with data from your Vantagepoint database. The Full Refresh may take a while to complete, depending on the size of your database. The job status updates every 30 seconds.
11. If there are errors in the refresh job, you can view the log:
 - a. Open SQL Server Management and connect to your SQL Server instance.
 - b. Expand **(+) SQL Server Agent**.
 - c. Expand **(+) Jobs**.
 - d. Right-click the **Full Refresh <database>_<language> DW and Cubes** job and select **Properties**.
 - e. Select the **Steps** page, select Step 2, and then click the **Edit** button.
 - f. Click the **Advanced** page and then click the **View** button.

If there is no log displayed: Close the **Property** pages, right-click the **Full Refresh** job again, select **View History**, locate the error identified with a red X, and then review the log message in the bottom pane. Contact Deltek Support if you need assistance.
12. When the Full Refresh job has completed, setup writes this log to the Vantagepoint\logs\<date_timestamp> folder.
13. If this is the first time that Analysis Cube setup has been run, the script saves the Analysis Cube configurations to the Vantagepoint database.
14. The script then applies User Defined Fields (marked for use in Analysis Cubes), User Defined Calculated Measures, Filters, and KPI's to the Analysis Cube database.
15. The script processes the Analysis Cube and checks the setup log for any errors.

Procedure for a Silent Installation of Analysis Cubes

Note: Only a basic deployment of Analysis Cubes is supported with the SilentInstall switch. Deployments including Scalable, Clustered or Availability Groups require an interactive setup.

Follow the Silent Install instructions in the *Deltek Vantagepoint Installation and Maintenance Guide* to create the silent install XML file using the CreatePasswords.ps1 and the ResponseGenerator.ps1 files.

Generate the password files

To generate password files:

1. Open the Windows Powershell Console as an administrator.
2. Make sure that your working directory is C:\Program Files\Deltek\Vantagepoint\Scripts.
3. Run the CreatePwdFiles.ps1 script:

C:\Program Files\Deltek\Vantagepoint\Scripts> .\CreatePwdFiles.ps1

The script displays a prompt that asks if you are creating passwords for a silent installation of Analysis Cubes.

4. Enter **Y** and then press ENTER.
5. Enter and confirm these passwords:

- **DSM User Download password**
- **Weblink password**
- **Vantagepoint application user password.** This is the password for a valid Vantagepoint application user account which is required to save cube configurations. This user and password must be for Vantagepoint application user (**not** a Windows Integrated user account)
- **Process Server Service Domain Account password**

The script uses these passwords to create the following .txt password files:

- sdownload.txt
 - weblink.txt
 - appuser.txt
 - procSvcDomainAcct.txt
6. Verify that the four generated password files are in the folder C:\Program Files\Deltek\Vantagepoint\Scripts.

Create the silent install XML file

You can create the response file in one of two ways:

- **Create the file manually:** Find the **cubesilentInstall.xml** file in C:\Program Files\Deltek\Vantagepoint\Scripts and use it as a guide to create the response file.
- **Use the ResponseGenerator.ps1 script to generate the file:** Follow the steps below.

To generate the response file:

1. Open the Windows Powershell Console as an administrator.
2. Make sure that your working directory is C:\Program Files\Deltek\Vantagepoint\Scripts.
3. Run the ResponseGenerator.ps1 script:

C:\Program Files\Deltek\Vantagepoint\Scripts> .\ ResponseGenerator.ps1

The script displays a form with a **Switches** drop-down list.

4. Select the **–SetupCube** switch from the drop-down list. (The drop-down list does not reference the IntelligenceSetupOption, just the sub-switches). The following fields are displayed:
 - **LoadReports:** Select **No** from the drop-down list.
 - **DSM Username / Password:** Enter your DSM username and click the **Password File** button to select the sDownload.txt password file created above.
 - **Vantagepoint Database Server:** Enter the name of the database server hosting your Vantagepoint database. Setup requires that the database server name entered be resolvable to the hostname or FQDN. If the database server hostname or FQDN is not resolvable based on the DNS configuration setup cannot continue.
 - **Weblink Password File:** Click the button and select the weblink.txt password file created above.
 - **Vantagepoint database name:** Enter the name of the Vantagepoint database for which you want to deploy Analysis Cubes. This database must exist in Weblink.

- **Vantagepoint Application user name:** Enter the name of the Vantagepoint application user account that has rights to the Analysis Cubes application. This account must be a Vantagepoint user (not a Windows Integrated account).
- **App User Password File:** Click the button and select the appuser.txt password file created above.
- **Vantagepoint Process Server Name:** Enter the name of the server hosting the Vantagepoint process server service.
- **Process Server Password File:** Click the button and select the procSvcDomainAcct.txt password file created above.
- **Analysis Cube Language:** Select the language for which you want to deploy Analysis Cubes.
- **Cube Rebuild Option:** If Analysis Cubes was previously been deployed for your database and the language chosen, a rebuild option is required. If this is a new deployment leave this option blank.

The available options are:

- **Option 1:** Apply System/Org label updates for Labels/Org names that have been changed in Vantagepoint.
- **Option 2:** Apply Cube Configuration updates for cube configurations (KPI's, user defined fields, and Calculated Measures) that have been modified.
- **Option 3:** Rebuild Analysis Cubes.
- **Option 4:** Full Refresh of Analysis Cubes.

For more information on these options, see [Chapter 4: Ongoing Analysis Cubes Configuration Maintenance](#).

5. After you confirm that the information entered is correct, click the **File** menu, choose **Save**, and then enter a name for the silent install xml file.

To run cube setup with the Silent Install switch:

1. From the installation directory Scripts folder, enter `.\Deltek\Vantagepoint.ps1 -SilentInstall <path_to_silent_install.xml>`.
2. The installer should run without asking for any prompts.
3. When the installer runs, it creates a log file, which is stored in `C:\Program Files\Deltek\Vantagepoint\Logs`.

Setup Steps Performed by the Script

The same configuration steps outlined in the Basic Deployment of the SetupCube sub-switch are performed with the SilentInstall switch, minus any prompts.

Procedure for Performing Multiple Silent Analysis Cube Updates

Assume that you have deployed Analysis Cubes for multiple databases (Production/Staging/Test) or you have deployed Analysis Cubes for a single database but with multiple languages. In addition, assume that you need to be able to perform a maintenance action on each of these Analysis Cube databases (ReApply System Labels, ReApply Cube Configuration or Rebuild Cubes).

There are two ways of performing multiple silent installation actions:

- Use the standard silent installation logic to create a multi-step response file.
- Use the DeltekVantagepointSilentInstallWrapper.ps1 script.

Option 1

To perform option 1, you would repeat step 4 to create additional “steps.” For information, see *Generate the ResponseFile* section of the *Deltek Vantagepoint Installation and Maintenance Guide*.

The standard `-SilentInstall` switch used in conjunction with a `response.xml` file works well for a single Silent Installation action, or even multiple actions assuming there are no errors. In the event of an error, say in Step 2 of a multi-step response file, the installation stops and does not continue processing additional steps.

Option 2

To perform option 2, follow the steps below.

The `DeltekVantagepointSilentInstallWrapper` script is designed to execute multiple individual response files, one after the other, regardless of errors occurring in an individual step.

Script components:

1. **DeltekVantagepointSilentInstallWrapper.ps1:** You execute this script instead of `DeltekVantagepoint.ps1`. This script calls the standard `.\DeltekVantagepoint.ps1 -SilentInstall` switch for each response file listed in the `SilentInstalls.txt` file (below).
2. **SilentInstalls.txt:** This file will have the names of each response file that will be executed (one response file on each line). For example, if you wanted to perform actions on 3 Analysis Cube databases, the contents of this file would include the name of 3 `<response>.xml` files, 1 for each action.
3. **Individual response XML files:** These are the XML files (created by the `ResponseGenerator.ps1` or manually), that describe the silent install action to perform and are listed in the `SilentInstalls.txt` file (above).

Deltek recommends that you name the `<response>.xml` files in a way that includes the name of the database and the language (if applicable), as the wrapper script will output the success/failure of each action/response file.
4. Additional silent installation files such as the password files, that are necessary to perform the silent installation. For more information, see *Silent Installation* in the *Deltek Vantagepoint Installation and Maintenance Guide*.

To use the DeltekVantagepointSilentInstallWrapper.ps1 script:

1. Identify the silent installation actions that you want to complete.
2. Using the `ResponseGenerator.ps1` file, create the individual response files for the `SetupCube` sub-switch.

It is important that the initial step number for each response file be **1** and the `nextStep` be **0**.

In addition, it is important to identify the specific **cubeRebuild** option in the **ResponseGenerator Analysis Cube Rebuild Option** drop-down list, as follows:

- For a new deployment, leave it blank.
- For ReApply System Labels, select Option 1.
- For ReApply Cube Configurations, select Option 2.
- For Rebuild Analysis Cubes, select Option 3.

Note: You can use the ResponseGenerator to create the first <response>.xml and then copy and paste the information (changing the parameters appropriately) into the additional <response>.xml files.

3. After you fill in all fields for the SetupCube sub-switch, including creating any required password files, save the file with a name that will be recognizable, in a format like this:
CubeSI_<database_name>_<language>.xml)
4. In Notepad, enter the name of each response file with a carriage return after each one, and then save the file as **SilentInstalls.txt**.
The contents of the file should be similar to the following:
 - CubeSI_VantagepointDemo40_en-US.xml
 - CubeSI_VantagepointDemo40_fr-CA.xml
 - CubeSI_VantagepointDemo40Test_en-US.xml
5. Place the SilentInstalls.txt file and the response xml files in the \Vantagepoint\scripts directory.

To execute the script:

1. Open a new PowerShell console window using **Run as Administrator**.
2. Change the directory to your Vantagepoint\scripts folder.
3. Enter .\DeltekVantagepointSilentInstallWrapper.ps1 and press ENTER to execute the script.

Procedure for Uninstalling Analysis Cubes

To run the script with the UninstallCube sub-switch:

1. From the installation directory Scripts folder, enter .\DeltekVantagepoint.ps1 - IntelligenceSetupOption **UninstallCube**.
2. When prompted, enter your Deltek Support username and password.
The script checks prerequisites, verifies your access to Deltek Vantagepoint, checks your IIS prerequisites, and then prompts you for the name of your Vantagepoint database server in the form (Server\Instance). The default value in brackets will be the database server entered during Vantagepoint setup, which is pulled from the DeltekVantagepointSettings.xml file.
3. Either accept the default value or enter the name of your Vantagepoint database server and press ENTER.
The script prompts for the password for Weblink, in order to provide a list of valid databases for which cubes can be uninstalled and then prompts you for the name of the database. The database must exist in Weblink and must be configured for the same database server entered in Step 6 above.
4. Enter the name of the Vantagepoint database and press ENTER. If there is only one database it will be displayed in brackets as the default and you can press ENTER.
The script identifies the available languages that have been previously deployed and prompts you for the language of the cubes to uninstall.
5. Enter the language code (for example. fr-CA) and press ENTER. If the language is English (United States), you can press ENTER, as it is the default language in brackets.

At this point the script has all of the information needed to perform the uninstall and proceeds to remove all deployed components for that language.

Setup Steps Performed by the Script

After you enter all of the information needed to run **DeltakVantagepoint.ps1 - IntelligenceSetupOption UninstallCube**, the script completes the following steps:

1. The script removes cube related files for your database/language combination from the Vantagepoint web server.
2. If your database server is separate from the web server, the script removes cube-related files for your database/language combination from the Vantagepoint database server.
3. The script deletes the data warehouse database for the language specified.
4. The script deletes the Analysis Cubes database for the language specified.
5. The script deletes the Full SQL Agent cube refresh job for the language specified.

Validate that the Analysis Cubes Configuration Completed Successfully

In SQL Server Management Studio, connect to your Database Engine and Analysis Services to confirm that:

- The Vantagepoint data warehouse, analysis cubes, and SQL Server agent jobs to refresh them are created.
- The Vantagepoint data warehouse and analysis cubes are populated correctly.
- The Vantagepoint analysis cubes are processed as part of the execution of the SQL Server agent job.

Connect to Your Database Engine and Analysis Services

To connect to your Database Engine and Analysis Services, complete the following steps:

1. Click Windows **Start » All Programs » Microsoft SQL Server <version> » SQL Server Management Studio**.
2. On the Connect to Server dialog box, complete the following steps:
 - a. In the **Server Type** field, select **Database Engine**.
 - b. In the **Server Name** field, select your SQL server (and instance, if applicable).
 - c. Connect using a Windows account that is a member of the SQL Server sysadmin role.
3. Click the **Connect** button.
4. In the **Connect** drop-down list on the Object Explorer window, select **Analysis Service**.
5. Select your Analysis Server as the server name.


Confirm that the Vantagepoint Data Warehouse, Analysis Cubes, and SQL Server Agent Job Are Created


After you connect to your Database Engine and Analysis Services, confirm that the following items are added:

- The Vantagepoint data warehouse displays in the Databases folder of the SQL Server Database Engine in Microsoft SQL Server Management Studio.
The name of the data warehouse is your Vantagepoint database name with DW appended to it. For example, if your Vantagepoint database is named “Vantagepoint” you should not also see a database named “VantagepointDW”. For a language other than en-US, the language code will be appended as well.
- The **Full Refresh < Vantagepoint database name>_<language> and Cubes** job displays in the SQL Server Agent Jobs folder.
- The **Incremental Refresh < Vantagepoint database name>_<language> and Cubes** job displays in the SQL Server Agent Jobs folder.
- **Deltek Vantagepoint Analysis - <Vantagepoint database name>** displays in the Databases folder of Analysis Services. For a language other than en-US, the language code will be appended as well.

Validate that the Vantagepoint Analysis Cubes Are Populated

To confirm that the Vantagepoint analysis cubes are populated:

1. In the SQL Server Agent Jobs folder, right-click the **Full Refresh <Vantagepoint database name>_<language> DW and Cubes** job, and select **View History** from the shortcut menu.
2. On the Log File Viewer dialog box, you see a green check mark  beside the date of the **<Vantagepoint database name>_<language> DW and Cubes** job if the Vantagepoint data warehouse and data cubes were populated correctly.

If you see a red  instead of a green check mark, refer to the troubleshooting information in [Chapter 3: Troubleshoot Analysis Cubes Deployments](#).

Note: The default schedule for the SQL agent job is to run every night at 12:00 am. If this schedule interferes with your nightly backup or any other processing or SQL agent scheduled jobs, you can modify the job to run at an appropriate time for your environment. Since this job is initiated via the Process Server, you need to modify the job in the Vantagepoint Refresh Queue or in the Refresh tab of **Settings » General » Analysis Cubes**.

Validate that the Vantagepoint Analysis Cubes are Processed

To validate that the Vantagepoint Project and General Ledger cubes are processed:

1. In SQL Server Management Studio, connect to Analysis Services.
2. In the Object Explorer pane, in Analysis Services, navigate to **Databases » Deltek Vantagepoint Analysis - <Your Vantagepoint Database Name> » Cubes**.
3. In the Cubes folder, right-click the Project OLAP Cube folder and select **Properties** from the shortcut menu.

In the **Status** section of the Cube Properties – Project Cube dialog box, the **State** displays **Processed**. The cubes must be in a processed state for you to be able to connect to them.

4. If the state displays **Unprocessed**, connect to the SQL Database Engine using SQL Management Studio and manually run the SQL Agent job. To do this, right-click the job and click **Start Job at Step**.
5. On the Start Job on dialog box, select step ID 1 and click **Start**.
6. When the process completes successfully, click **Close** on the Start Jobs dialog box.

A successful completion of the SQL Agent refresh job automatically processes both the Project and General Ledger data cubes.

Validate that the Vantagepoint Cubes can be Browsed

To validate that the Vantagepoint Project and General Ledger cubes can be browsed:

1. In SQL Server Management Studio, connect to Analysis Services.
2. In the Object Explorer pane, in Analysis Services, navigate to **Databases » Deltek Vantagepoint Analysis - <Your Vantagepoint Database Name> » Cubes**.
3. In the Cubes folder, right-click the Project OLAP Cube folder and select **Browse** from the shortcut menu.
4. Under the Project OLAP Cubes, expand Measures and then Revenue -Project.
5. Drag the Revenue measure to the grid on the bottom right.
If the cube is populated with data, the balance of the Revenue measure is displayed.
6. To see the Revenue by Project Organization, expand the Projects dimension and drag the Projects by Organization hierarchy to the right.

You should now see the Revenue measure by Project Organization.

Completing these steps shows that the cube has been browsed successfully and that the cube has been populated with data.

Add Your Domain Users to the User Accounts Analysis Cube Role

The PowerShell deployment of the Analysis Cube automatically creates two roles in the Analysis database, a Service Accounts Role and a User Accounts Role. Make sure to add your domain users that need access to the Analysis Cubes to the User Accounts role. When the Analysis Cubes are rebuilt at any time in the future the script will backup and restore user accounts that currently exist in the User Account Role.

Note: Your network administrator may find it easier to create a domain group that contains all the necessary domain users. If this is the case, you can add the domain group instead of each individual domain user.

Script the Role

After you add your users to the User Accounts role, it is recommended that you script the creation of the role so that it can be easily recreated if needed.

This will be useful to have when you upgrade to a new version of Vantagepoint and need to rebuild the Vantagepoint data warehouse and data cubes. When you rebuild them, any Analysis Service roles that you previously created for them are lost.

To save a role to a script:

1. Use SQL Server Management Studio to connect to Analysis Services.
2. In Object Explorer, navigate to **Databases » Deltek Vantagepoint Analysis - <Vantagepoint database name> » Roles**.
3. Right-click the role that you created for Analysis Cubes, and click **Script Role as » CREATE To » File** on the shortcut menu.
4. On the Select a file dialog box, save the file as an .XMLA file type to a location on your server.
An XMLA file is the Analysis Services equivalent of a database .sql script.
5. When you rebuild the cubes and need to recreate the role, open the .XMLA file while you are connected to Analysis Services and execute it against your Analysis Services database.

This script recreates the role name and the domain users that are members of the role. You then must reassign access to the data source and the data cubes as in steps 6 and 7 in the "Create an Analysis Services Role for Your Domain Users" section of this document.

You have completed the Analysis Cubes configuration.

Note: If you want users to be able to access Vantagepoint OLAP cubes via the Internet (from outside a corporate firewall), you must perform the additional configuration steps that are provided in [Chapter 5: Configure Analysis Cubes for Internet Accessibility](#).

Multiple Vantagepoint Databases

The Vantagepoint PowerShell deployment scripts support deploying cubes for multiple Vantagepoint databases; you may have development, test, and production copies of the database for which you need to deploy cubes. After you complete the Analysis Cubes configuration instructions to create data cubes for one Vantagepoint database, repeat all the configuration steps to create data cubes for each database.

Multiple Languages

Vantagepoint Analysis Cubes for Each Language

To create custom reports in different languages, you must create separate Vantagepoint Analysis cubes for each language. To create analysis cubes for a different language, you repeat the configuration steps in this guide choosing the same Vantagepoint database but changing the language selection during the deployment script prompt as appropriate. When you create a custom report in Excel, you connect to the analysis cube with the desired language. For example, an English International analysis database that contains the data cubes has _en-GB at the end of its name.

Creating Custom Reports in Excel Against the Different Language Data Cubes

Users who connect to the language data cubes in Excel must perform an additional step so that the Vantagepoint dimensions, measures, and system labels display in the correct language in the Excel

PivotTable Field List. For this additional step, users must add a locale identifier code to the connection string in the .odc file for each of the Project and General Ledger data cubes. You complete this step one time for each data cube. The steps are included here and in the Analysis Cubes section of the Vantagepoint Help system. The locale identifiers for currently supported languages are listed in the following table:

Language for the data cubes	Locale Identifier #
English (United States)	Not required
English (International)	2057
French (Canada)	3084
French (France)	1036
Spanish (International)	3082
Dutch (Netherlands)	1043
German (Germany)	1031
Portuguese (Brazil)	1046

To add a locale identifier code to the connection string in a data cube .odc file:

- In Excel, connect to the Vantagepoint Project or General Ledger data cube. An .odc connection is creating during the connection process.
- Use Windows Explorer to navigate to the following location:
c:\Users\<username>\My Documents\My Data Sources
- In the My Data Sources folder, right-click the .odc file for the connect to the language data cube. The file has the following naming convention:
 - Project data cube: <your Vantagepoint server name> Deltek Vantagepoint Analysis <your Vantagepoint database name>_<language> Project OLAP Cube.odc
 - General Ledger data cube: <your Vantagepoint server name> Deltek Vantagepoint Analysis <your Vantagepoint database name>_<language> General Ledger OLAP Cube.odc

You must have Excel open and connected to a *Vantagepoint* language data cube for this file to display in Windows Explorer.
- On the shortcut menu, click **Edit in Notepad**.
- In Notepad, find the following odc: ConnectionString line:
<odc:ConnectionString>Provider=MSOLAP.4;Integrated Security=SSPI;Persist Security Info=True;Data Source=<Analysis Server>;Initial Catalog=Deltek Vantagepoint Analysis - <your database name>_<language> </odc:ConnectionString>
- Add ;**Locale Identifier=<locale identifier #>** to the end of the string as follows:
<odc:ConnectionString>Provider=MSOLAP.4;Integrated Security=SSPI;Persist Security Info=True;Data Source=<Analysis Server>;Initial Catalog=Deltek Vantagepoint Analysis - <your database name>_<language>;**Locale Identifier=<locale identifier #>**</odc:ConnectionString>

Note the semicolon before Locale Identifier=<locale identifier #>.

7. Save and close the file in Notepad.

In Excel, the *Vantagepoint* dimensions, measures, and system labels in the PivotTable Field list for the data cube now display in the appropriate language.

Producing Reports in Both the English United States and English International Languages

If you want to produce the same report in both the English United States language and another language, you can use one .xlsx Excel report file for both reports. However, if you have Vantagepoint system labels that are different for each language, any dimensions added to the report design that have a system label in their name are removed from the .xlsx file when you are connected to the other language and open the report. In that scenario, you need to add the missing dimension back to the report, or you could create a separate .xlsx Excel report file for each language.

An example of different systems labels is having “job” set up as the system label for WBS (work breakdown structure) 1 in the English United States Vantagepoint database and “project” set up as the system label for WBS 1 in the language Vantagepoint database.

Chapter 3: Troubleshoot Analysis Cubes Deployments

You must meet many pre-requisites and complete many individual steps to deploy Analysis Cubes successfully. In addition, there may be data-related issues during the process because data is copied and transformed from your Vantagepoint database to the data warehouse and then to the Analysis Services database. Failures can occur during any of these steps.

The following table provides some basic troubleshooting information.

Step Where You Encounter Problems	What to Do
Pre-requisites	Review the pre-requisite requirements at the beginning of this guide.
Creation of data warehouse, refresh jobs or Analysis cubes database.	<p>Ensure that you have upgraded the Vantagepoint database tier installation to the current version.</p> <p>Review the VantagepointCubes_<timestamp>.txt file in the \Vantagepoint\Logs folder. If you need to open a Customer Care incident, be sure to include all logs in the \Vantagepoint\Logs\<timestamp> folder for the time of the script execution.</p>
Apply System Labels to Cubes	Review the VantagepointCubesCreate_<timestamp>.txt file in the Vantagepoint Logs folder for errors. If you need to open a Customer Care incident, be sure to include all logs in the \Vantagepoint\Logs\<timestamp> folder for the time of the script execution.
Populate DW and <i>Vantagepoint</i> Cubes	<p>Review the SQL Server Agent job Refresh log for errors. That log is located in the Vantagepoint\Logs\<timestamp> directory and is in the format VantagepointCubesRefreshLog<timestamp>.txt.</p> <p>If you need to open a Customer Care incident, be sure to include all logs in the \Vantagepoint\Logs\<timestamp> folder for the time of the script execution.</p>
Apply Cubes Configurations	<p>Review the VantagepointCubes_<timestamp>.txt file in the \Vantagepoint \Logs folder.</p> <p>If you need to open a Customer Care incident, be sure to include all logs in the \Vantagepoint\Logs\<timestamp> folder for the time of the script execution.</p>

Problems and Solutions

Solutions to known problems are listed below:

Problem	Solution
The SQL Agent Refresh job View button (which allows you to view the refresh log) does not allow the ability to see logs from previous runs.	<p>If you need (or want) to be able to see the logs from multiple refresh job runs, select the Append output to existing entry in table check box in the Advanced tab of the SQL Agent job step properties dialog.</p> <p>If you need to obtain the log for a currently running job, use the following PowerShell script in the Windows PowerShell ISE:</p> <pre>\$RefreshAgentJobName = "Full Refresh <database>_<language> DW and Cubes" \$DBServer = "<database_server>" (Invoke-Sqlcmd -Query "EXEC dbo.sp_help_jobsteplog @job_name = N'\$RefreshAgentJobName', @step_id='1';" -ServerInstance "\$DBServer" -Database "msdb" - MaxCharLength 10000000).log</pre>
<p>You receive an error similar to the following:</p> <p><i>"WinRM cannot process the request. The following error occurred while using Kerberos authentication: Cannot find the computer <database_server>"</i></p> <p><i>"The WinRM client cannot process the request. Default authentication may be used with an IP address under the following conditions:"</i></p>	<p>Setup was unable to resolve the database server name entered to a hostname or FQDN which is required for setup to continue. Ensure that the correct DNS entries are in place for proper resolution. For example, a Host (A) record must exist for the FQDN of the server (hostname.company.com) and if using a Custom DNS alias, an Alias (CNAME) record should be created.</p>
<p>You receive the following error after entering the Vantagepoint username and password required to save cube configurations:</p> <pre>"error": "invalid_clientId", "error_description": "Client_id or Client_secret is invalid."</pre>	<p>Database entries in Weblink have been modified and IIS has not been restarted since the changes were made. Restart IIS and continue setup. This will be fixed in a future release of Vantagepoint.</p>

Chapter 4: Ongoing Analysis Cubes Configuration Maintenance

After you initially configure Analysis Cubes, whenever you make changes to Vantagepoint System or Organization labels or to Analysis Cubes configuration settings in Vantagepoint, you must repeat some Analysis Cubes configuration steps.

In addition, you may need to completely rebuild the cubes with each new Vantagepoint release if that release includes changes that impact Analysis Cubes, such as new database fields that are specific to Analysis Cube, updates to the Integration Services packages, or other Analysis Cubes-specific changes. The PowerShell deployment script –Upgrade switch will notify you what changes are needed for the Analysis Cubes (if any) and always review the Release Notes for information on whether a cube-related change or fix means that you must rebuild the cubes.

The following options are available via the PowerShell SetupCube sub-switch:

- Re-Apply System/Organization labels
- Re-Apply Analysis Cube configurations
- Rebuild Analysis Cubes
- Refresh Analysis Cube data (Full Refresh)
- Rebuild Integration Services packages

System and Organization Label Changes in Vantagepoint

Whenever you make a System label change in Vantagepoint (**Settings » Labels and Lists » Labels**), or you make changes to your Organization labels (**Settings » Organization » Codes** in the desktop application), you must update the data cubes for the label changes to be reflected in the Analysis Cubes.

To re-apply system and organization labels to the data cubes using the PowerShell deployment scripts, complete the following steps:

1. Follow the steps outlined in the [Procedure for Basic Deployment](#).
2. When you get to Step 11 and you are prompted by setup that the cubes have already been deployed, enter 1 as the choice to Apply System Label updates.

Attention: If there are any errors applying System Labels you will receive a message indicating this and that you can obtain the detailed error message by reviewing the VantagepointCubesCreate<timestamp>.log in the Vantagepoint Logs directory.

Any errors are likely due to duplicate system labels in Vantagepoint. You can review the Labels tab of Labels and Lists and the Organization names setup for duplicates. You will be unable to utilize the Analysis Cubes until these issues are resolved. Contact Deltek Support if you need assistance.

Analysis Cubes Configuration Changes in Vantagepoint

Anytime that you make changes to the following Analysis Cubes configuration in Vantagepoint, complete the PowerShell script steps below to update the Analysis Cubes:

Path in Vantagepoint	Configuration Step
Settings » General » Analysis Cubes	<p>Complete Analysis Cubes configuration as needed:</p> <ul style="list-style-type: none"> Select or hide the dimensions and measures to populate the data cubes. Create, delete or modify key performance indicators (KPIs). Create calculated measures. Set up currency exchange information. <p>See the Vantagepoint online Help for more information.</p>
<p>Screen Designer form in Vantagepoint:</p> <ul style="list-style-type: none"> In a hub, select Design in Other Actions or Settings » General » Screen Designer <p>Settings » General » User Defined Components in the desktop application</p>	<p>Create or select user defined fields to populate the data cubes.</p> <p>See the Vantagepoint online Help for more information and instructions.</p> <p>Note the following character limits for user defined field labels:</p> <ul style="list-style-type: none"> Less than 95 characters in length. No invalid characters. <p>During the installation process, a message shows user defined fields that do not pass these requirements.</p>

To update the data cubes with the current Analysis Cubes configuration entered or updated in Vantagepoint:

- Follow the steps outlined in the [Procedure for Basic Deployment](#).
- When you get to Step 11 and you are prompted by setup that the cubes have already been deployed, enter 2 as the choice to Apply Cube Configuration updates.

Rebuild Analysis Cubes

Whenever there are changes that necessitate that the Vantagepoint Analysis Cubes be rebuilt, such as a Vantagepoint Maintenance Release or major releases (such as 4.0, 4.5, and so on) that includes Analysis Cube related updates, complete the following steps to re-deploy Analysis Cubes:

To rebuild Analysis Cubes:

- Follow the steps outlined in the [Procedure for Basic Deployment](#).
- When you get to Step 11 and you are prompted by setup that the cubes have already been deployed, enter 3 as the choice to Rebuild Analysis Cubes.

Update (Refresh) the Data Warehouse (DW) and the Vantagepoint Cubes

Attention: For a Full Refresh of the data, Deltek recommends that you complete this step after business hours when users are not connected to the *Vantagepoint* transactional database as information added to the database during the cube refresh process can result in data synchronization issues.

The SQL Agent Refresh Job is configured to write a detailed output log to the MSDB database and will also automatically write this log to the Vantagepoint Logs folder. The name of the file will be in the following format: <Database Name> <Culture>_Refresh.log.

If for some reason the detailed output log is not written to the Vantagepoint logs folder, you can view the log from the MSDB database using the following steps.

To view the log:

1. Follow the steps outlined in the [Procedure for Basic Deployment](#).
2. When you get to Step 11 and you are prompted by setup that the cubes have already been deployed, enter 4 as the choice to perform a Full data refresh.

Rebuild Integration Services Packages

The Vantagepoint deployment script –Upgrade switch will detect and perform any required updates to the Integration Services Package files. Should an error occur in this step during the upgrade process, you can run the – IntelligenceSetupOption UpdateCubeDtsxPackages switch, which will perform the same updates as those performed by the –Upgrade switch.

Chapter 5: Configure Analysis Cubes for Internet Accessibility

If you want users to be able to access the Vantagepoint Analysis cubes via the Internet (from outside a corporate firewall), complete the configuration steps in this section. Using these instructions, you will configure Internet Information Services (IIS) to allow Microsoft Excel to access Analysis Services via HTTPS.

You must complete the instructions in the previous sections of this guide to configure Analysis Cubes before you complete the instructions in this section to configure Analysis Cubes for Internet accessibility.

Install and Configure the OLAP Data Pump

You can perform the following steps on any server running IIS that has been configured to be allowed access from the Internet and configured to have access to the Analysis Services database. In many cases, this may be the Vantagepoint Web/application server.

Attention: Windows Integrated Authentication will not work with Excel if users are not authenticated to the domain. Therefore, for this to work for Internet users, the OLAP virtual directory must be configured for Basic Authentication. With Basic Authentication, users still enter their domain credentials, but they are passed in clear text. For this reason, you must secure the Web site that is hosting the OLAP virtual directory with an SSL certificate.

The OLAP Data Pump component is loaded into IIS and serves as an ISAPI extension to pump data from the client to an Analysis Services server and back.

You must configure the OLAP Data Pump if you are configuring the Analysis Cubes to be accessed by Excel for Internet users.

The following steps guide you through installing and configuring the Microsoft OLAP Data Pump.

Step 1: Get Binaries

Copy the contents of the %SSAS Installation folder%\OLAP\bin\isapi folder on the Analysis Services server into the folder that you want to serve as the base for the virtual directory in IIS on the web server which will host the OLAP data pump. This web server may or may not be your Vantagepoint web server.

In this example, we copy all the files from the C:\Program Files\Microsoft SQL Server\MSAS<version>.<Instance Name>\OLAP\bin\isapi folder into the C:\inetpub\wwwroot\olap folder. Note that your SQL path will be different, depending on the version of SQL Server and instance name.

The following guidelines apply:

- Because of IIS limitations, the path to your directory must not contain spaces.
- If you plan to run the HTTP pump on a different server than the Analysis Services server, you must also install OLEDB for Analysis Redistributable package for your version and platform of SQL Analysis Services on the Web server hosting the OLAP Data Pump. See [Configure Settings if Data Pump and SSAS Are on Different Servers](#) for more information.

Step 2: Create an Application Pool

To create an application pool:

1. Click **Windows Administrative Tools » Internet Information Services** to open the IIS Manager.
2. In the IIS console, expand the **Server Name** node.
3. Right-click **Application Pools**, and click **Add Application Pool** on the shortcut menu.
4. On the Add Application Pool dialog box, complete the following:
 - In the **Name** field, enter a name for the application pool. In this example, it is **olap**.
 - In the **.Net Framework version** field, select **.NET Framework v4.0.30319**.
 - In the **Managed pipeline mode** field, accept the default, **Integrated**.

Step 3: Create a Virtual Directory

To create a virtual directory:

1. In the Connections pane of the IIS console, expand **Sites**, and then expand **Default Web Site** (or the site name that you use).
2. Right-click the Web site, and click **Add Application** on the shortcut menu.
3. On the Add Applications dialog box, complete the following:
 - In the **Alias** field, enter the name for the virtual directory. In this example, it is **olap**.
 - The content directory in the **Physical path** field must point to the folder that you created.
4. Click **OK** to create the application.
5. In the Connections pane, click the **OLAP** virtual directory, and double-click **Handler Mappings** in the /OLAP Home pane.
6. In the Actions pane on the right, click **Edit Feature Permissions**.
7. On the Edit Feature Permissions dialog box, select the **Read** and **Script** permissions check boxes if they are not selected, and click **OK**.
8. In the Actions pane, click **Add Script Map....**
9. On the Edit Script Map dialog box, complete the following, and then click **OK**.
 - In the **Request path** field, enter ***.dll**.
 - In the **Executable** field, browse to and select the location of the msmdpump.dll file. For multiple instances, be sure to point to the appropriate physical instance folder.
 - In the **Name** field, enter **OLAP**.
10. On the Add Script Map dialog box, click **Yes** to add the ISAPI extension and save.
11. To see the ISAPI extension that was added, click the **Server Name** node in the IIS console, and double-click **ISAPI & CGI Restrictions**.
12. In the ISAPI and CGI Restrictions pane, double-click **OLAP Data Pump**.

Step 4: Configure Security for Excel Access over the Internet

Before you begin the following procedure to configure security for Excel access over the internet, enable Basic Authentication in your IIS configuration if it is not currently enabled. To do so, go to **Server Manager » Roles » Web Server (IIS) » Add Role Services**.

To configure security for Excel access over the Internet:

1. In the Connections pane of IIS Manager, select the **OLAP** virtual directory.
2. In the /OLAP Home pane, double-click **Authentication**.
3. In the Authentication pane, select **Basic Authentication**.
4. In the Actions pane, click **Enable** and then click **Edit**.
5. On the Edit Basic Authentication Settings dialog box, configure the default domain:
6. If it is appropriate, disable Anonymous Authentication and Windows Authentication.

Step 5: Select the Target Analysis Services Server

Every instance of the OLAP Data Pump uses its own configuration file.

Open the msmdpump.ini file in your folder. The contents of the file should look like the following:

```
<ConfigurationSettings>
  <ServerName>localhost</ServerName>
  <SessionTimeout>3600</SessionTimeout>
  <ConnectionPoolSize>100</ConnectionPoolSize>
</ConfigurationSettings>
```

The only setting of interest, at this point, is **<ServerName>**. If the Analysis Services instance to which you must provide access is located on the local machine and installed as a default instance, you have no reason to change this setting. If it is not located and installed in this way, you must specify the machine name and instance name (mymachine\inst1).

The key setting at this point is **<ServerName>**. If the Analysis Services instance to which you must provide access is located on the local machine and installed as a default instance, do not change this setting. Otherwise, you must specify the machine name and instance name:

```
<ServerName>mymachine\inst1</ServerName>
```

Step 6: Get it All Together

At this point, your HTTP pump is configured, and you can connect from your application.

If your application provides a way to specify the server name, replace your server name with the path to your virtual directory concatenated with **msmdpump.dll**. For example:

```
https://<IISServerFQDN>/<olapVirtual>/msmdpump.dll
```

After you install the Microsoft OLAP Data Pump, complete the following tasks:

- Configure settings, if the data pump and OLAP are not on the same server.
- Test the data pump configuration.

Configure Settings if Data Pump and SSAS Are on Different Servers

If the data pump and SSAS are not on the same server, install the following prerequisite software components:

- Download and install the Analysis Services OLE DB drivers:
<https://docs.microsoft.com/en-us/analysis-services/client-libraries?view=asallproducts-allversions>

Make sure to choose the MSOALP (AMD64) link.

- Modify the **ServerName** setting in the msmdpump.ini file to point to the location of the SSAS server. Change **localhost** to the name of your SSAS server, including the instance name if applicable:

```
<ConfigurationSettings>
<ServerName>localhost</ServerName>
<SessionTimeout>3600</SessionTimeout>
<ConnectionPoolSize>100</ConnectionPoolSize>
</ConfigurationSettings>
```

Test the Data Pump Configuration

Complete the following actions to test the data pump configuration:

- Test the URL.
- Test the connection using SQL Management Studio.
- Test the connection using Excel.

Test the URL

To test the URL to ensure that the data pump is set up correctly, complete the following steps:

- Access the data pump URL (<https://<IISServerFQDN>/<OLAPVirtual>/msmdpump.dll>).
- Go to Internet Explorer Advanced Settings.
- Clear the **Show friendly HTTP error messages** check box. The following information displays:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
<soap:Body>
<soap:Fault xmlns="http://schemas.xmlsoap.org/soap/envelope/">
<faultcode>XMLAnalysisError.0xc10e0002</faultcode>
<faultstring>Parser: The syntax for 'GET' is incorrect.</faultstring>
<detail>
<Error ErrorCode="3238920194" Description="Parser: The syntax for 'GET' is
incorrect." Source="Unknown" HelpFile="" />
</detail>
</soap:Fault>
</soap:Body>
</soap:Envelope>
```

Though the information above reflects an error, this message indicates that the data pump is configured correctly. If the information above does not display in the browser, check the Application Event log on the server for errors.

Test the Connection Using SQL Server Management Studio

You can use HTTP and SQL Server Management Studio to test the data pump connection to the Vantagepoint Analysis Cubes.

However, you cannot test the connection using SSMS if you chose Windows Integrated Authentication for the IIS virtual directory. In that case, you can temporarily set the IIS virtual directory permissions for Anonymous Access and test the configuration. Remember to change the Anonymous Access account to a user account that has read access to the Vision Analysis Cubes. After you complete the test, enable Windows Integrated Authentication again.

Test the Connection Using Excel

You can use HTTP and Microsoft Excel to test the data pump connection to Analysis Cubes. However, you cannot test the connection using Excel if you chose Windows Integrated Authentication for the IIS virtual directory. In that case, you can temporarily set the IIS virtual directory permissions for Anonymous Access and test the configuration. (Remember to change the Anonymous Access account to a user account that has read access to the Vantagepoint Analysis Cubes. After you complete the test, enable Windows Integrated Authentication again.

Configure the Data Source in Excel

After you configure IIS per the [Install and Configure the OLAP Data Pump](#) section, Internet users can use the URL when they configure the data source in Excel.

To configure the data source in Excel:

1. In Excel, click the Data tab, and then click **From Other Sources » From Analysis Services**.
On the Connect to Database Server page, enter the following information and click **Next**:
 - In the **Server name** field, enter the URL (**https://<IISServerFQDN>/olap/msmdpump.dll**).
 - Select the **Use the following User Name and Password** option.
 - In the **User Name** field, enter the user name (in form of **domain\user**).
2. On the Select Database and Table page, select the database from the drop-down list, select the cube that you want to connect to, and then click **Next**.
3. On the Save Data Connection File and Finish page, select the **Save password in file** check box and click **Finish**.
When you select the **Save password in file** check box, your domain password is saved in clear text in the data source connection file, which is a potential security risk. However, not selecting the check box will prompt you to re-enter the password.
4. On the Import Data dialog box, click **OK**.
If you did not select the **Save password in file** check box in Step 4, you may receive an **"Installation of the data source failed"** error.
5. Click **OK**.
6. On the Multidimensional Connection page, re-enter your password and click **Next**.
7. On the Select the database that you want to work with page, click **Finish** to begin using the cube data in Excel.

Appendix A

Steps to Create a Scalable Analysis Cubes Deployment

This Appendix outlines the specific details to scale out your Analysis Cubes deployment. Refer to the [Procedure for Scalable Deployment](#) for specific information on the deployment of Analysis Cubes in a scalable deployment.

The following terminology will be helpful in understanding how scalability is achieved.

Abbreviation	Meaning	Description
Vantagepoint DB	Vantagepoint Database Server	This server hosts the Vantagepoint transaction database.
Vantagepoint DW	Vantagepoint Data Warehouse	This is a secondary database hosted in SQL Server which houses intermediate data from your Vantagepoint database which has been processed and transformed by the SQL Integration Services Packages via an ETL process.
Vantagepoint ETL	Vantagepoint Business Logic Extract, Transform, and Load	Vantagepoint ETL business logic is run by a SQL Server Agent jobs.
Vantagepoint Agent	SQL Server Agent job	This job is scheduled to refresh the Data Warehouse and Analysis Services data nightly by default.
Vantagepoint AS	SQL Server Analysis Services	Project and General Ledger OLAP Cubes.

The following configurations are supported:

Configuration	Server 1 (Vantagepoint DB Tier)	Server 2 (Vantagepoint DW Tier)	Server 3 (Vantagepoint AS Tier)	Notes
Option #1 Non-scalable Single Server installation	Vantagepoint DB Vantagepoint DW Vantagepoint ETL Vantagepoint Agent	N/A	N/A	This is the default configuration where all components exist on the same server. The steps for this configuration are covered in the Procedure for Basic Deployment and are not applicable for a scalable configuration.

Configuration	Server 1 (<i>Vantagepoint</i> DB Tier)	Server 2 (<i>Vantagepoint</i> DW Tier)	Server 3 (<i>Vantagepoint</i> AS Tier)	Notes
	Vantagepoint AS			
Required Services	SQL Server SQL Server Agent SQL Server Integration Services SQL Server Analysis Services	N/A	N/A	
Option #2 Two-server scalable configuration	Vantagepoint DB	Vantagepoint DW Vantagepoint ETL Vantagepoint Agent Vantagepoint AS	N/A	In this configuration all components except the Vantagepoint transaction database are created on a second server.
Required Services	SQL Server	SQL Server SQL Server Agent Service SQL Server Integration Services SQL Server Analysis Services	N/A	
Option #3 Three-server scalable configuration	Vantagepoint DB	Vantagepoint DW Vantagepoint ETL	Vantagepoint AS	In this configuration the Vantagepoint AS is moved from the DW to a third server.

Configuration	Server 1 (<i>Vantagepoint</i> DB Tier)	Server 2 (<i>Vantagepoint</i> DW Tier)	Server 3 (<i>Vantagepoint</i> AS Tier)	Notes
		Vantagepoint Agent		
Required Services	SQL Server	SQL Server SQL Server Agent SQL Server Integration Services	SQL Server Analysis Services	

Prerequisites for Scalability

- Ensure that you have the necessary SQL Server licenses for your deployment. Refer to the Microsoft SQL Server licensing guidelines or talk to your licensing representative if you have any questions.
- The Edition of SQL Server of the DW/AS or AS servers can be different from that used for the Vantagepoint Transaction Database server. Note, however, that if you have the Enterprise Edition of SQL Server for your Transaction Database server and deploy Standard Edition for the DW/AS or AS server, you will not have access to the functionality limited by Standard Edition (refer to the section [Microsoft SQL Server Edition Dependencies](#) in this guide for more information). Conversely, if your Vantagepoint Transaction Database Server is Standard Edition and you deploy the Enterprise Edition as the DW/AS or AS server, you will gain this functionality.
- Ensure that you have the necessary and supported SQL Server services installed on the various servers depending on your deployment model (refer to the chart above for information). The deployment scripts will verify your configuration.
- Your SQL Server services must be configured to run with domain accounts.
- You must register Service Principal Names (SPNs) for the domain service account running the SQL Server service on the Data Warehouse server. To configure the SPN's, execute the following commands:
 - Setspn -A MSSQLSvc/<machine_name> <domain>\<svc account>
 - Setspn -A MSSQLSvc/<FQDN> <domain>\<svc account>
 - Setspn -A MSSQLSvc/<FQDN>:port <domain>\<svc account>
- Domain delegation is required for a scalable deployment of Vantagepoint. You will need to configure constrained delegation for the Data Warehouse service account to the SQL Service running on the Vantagepoint database server.

To create a scalable configuration, complete the following steps:

- If you have any existing Vision Analysis Cubes deployments on your Vantagepoint database server, run the UninstallCube switch to remove them.
- Using the SQL Server installation media, install the appropriate SQL Server components on the Vantagepoint DW tier (and Vantagepoint AS tier if implemented a three-server scale out

deployment) as indicated in the chart above. Be sure to apply the supported service packs and cumulative updates on all servers.

3. Complete the deployment using the SetupCube sub-switch run from your Vantagepoint web server following the steps outlined in [Procedure for Scalable Deployment](#).

About Deltek

Better software means better projects. Deltek delivers software and information solutions that enable superior levels of project intelligence, management and collaboration. Our industry-focused expertise makes your projects successful and helps you achieve performance that maximizes productivity and revenue. www.deltek.com