# Deltek Vantagepoint Intelligence

## Installation and Configuration Guide

**Deltek**

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# Contents

# Overview

This guide provides instructions on how to install and configure the Analysis Cubes and Intelligence Dashboards components of the Deltek Vantagepoint Intelligence module. These instructions apply for both new Vantagepoint Intelligence installations and upgrades from earlier versions.

## Vantagepoint Intelligence

Vantagepoint Intelligence is an optional module that consists of two parts:

- **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. The Analysis Cubes also serve as the data sources for the performance dashboards that you create.

- **Intelligence Dashboards**: Use Tableau® Server and Tableau Desktop (products of Tableau Software®, Inc.), along with Analysis Cubes and Microsoft SQL Server and Microsoft SQL Server Analysis Services components, to create role-based graphical Intelligence dashboards. Executives and managers use Intelligence dashboards to view and interact with critical project and general ledger data using a variety of graphical representations of that data. The Intelligence dashboards are displayed as dashparts on the Vantagepoint Dashboard.

## What's New

### Version 4.0.6

**IMPORTANT:** The Vantagepoint Intelligence switches have been moved to sub-switches under the new IntelligenceSetupOption main switch. To run the switches in Vantagepoint Intelligence 4.0.6 and later, enter the switches as follows:

.\DeltekVantagepoint.ps1 –IntelligenceSetupOption <switch> (replace <switch> with SetupCube, UninstallCube, UpdateCubeDtsxPackages or DownloadVantagepointIntelligence).

The sub-switches do not have a dash before the switch name; for example:

.\DeltekVantagepoint.ps1 –IntelligenceSetupOption SetupCube

Also updated in Vantagepoint Intelligence 4.0.6:

- The SQL Server Edition check was modified to support the new core-based licensing models of SQL Server. Enterprise Edition or Standard Edition is still required.

- The duplicate system label check has been modified to only check for duplicates in Org and Labor Code labels that are actually in use in your Vantagepoint configuration.

### Version 4.0.0 to 4.0.5

The SetupCube sub-switch now tracks the setup progress for Analysis Cubes processes. This new tracking function enables the SetupCube sub-switch to determine where an error occurred in the Analysis Cubes-related actions (setup, rebuild, and so on) and enable the process to resume from the last successfully processed step. For example, the SQL Agent refresh job failed during the initial Analysis Cube deployment, and then the issues were resolved. When the script is run again, it will start from running the refresh job, rather than repeating previously successful steps.

Additional guidance on formats for SQL Server domain login was added to the introduction paragraph of the Service Accounts and Permissions section.

The following sections now describe that user accounts are backed up and can be restored when you rebuild the Analysis Cubes database:

- In step 6 and 8 of *Setup Steps Performed by the Script* under Procedure for Basic Deployment

- In step 7 and 9 of *Setup Steps Performed by the Script* under Procedure for Scalable Deployment, Procedure for SQL Server Cluster Deployment, and Procedure for a SQL Availability Group Deployment

- In the introduction paragraph of the Add Your Domain Users to the User Accounts Analysis Cube Role section.

The steps in the following sections were updated with information on how the Deltek Vantagepoint directory structure is configured if the drive where Vantagepoint is installed on the web server does not exist on the database server:

- In step 2 of *Setup Steps Performed by the Script* under Procedure for Basic Deployment

- In step 3 of *Setup Steps Performed by the Script* under Procedure for Scalable Deployment

- In step 2 of *Setup Steps Performed by the Script* under Procedure for SQL Server Cluster Deployment

- In step 2 of *Setup Steps Performed by the Script* under Procedure for a SQL Availability Group Deployment

Updates were also made to Chapter 4: Ongoing Analysis Cubes Configuration Maintenance:

- The Rebuild Integration Services packages item was added to the list of options that are available via the PowerShell SetupCube sub-switch.

- A new Rebuild Integration Services Packages section was added.

Validations were incorporated to the deployment process of Analysis Cubes, to catch issues with currencies and system labels. These new validations address reported bugs that were experienced during the deployment process.

- A bug related to deploying analysis cubes with servers that have a hyphen in the name was fixed.

- Setup now checks for, and reports on, the existence of duplicate system labels that would impact the deployment of Analysis Cubes. If any are found, Setup displays a prompt asking if you wish to continue and warning that doing so without changing the labels may result in errors building the Analysis Cubes.

- Setup checks the data warehouse database to ensure that the analysis cubes have been rebuilt when previous upgrades have required them.

- To fix a bug, the process server job that would update currency exchange rates was removed. This process server job was originally for Vision, and it should have been removed during the migration process to Vantagepoint. This job was removing the assigned Pivot Currency and causing certain measures that depend on the Pivot Currency to not be visible. In addition, setup now detects whether or not multiple currencies are enabled. If they are, setup then alerts the user running the script that the process server job to update currency exchange rates needs to be scheduled on the Currency Exchange tab of Analysis Cubes form (**Settings » General » Analysis Cubes**).

- See the following sections for more information:
  - In steps 10 and 11 under Procedure for Basic Deployment
  - In step 5 of *Setup Steps Performed by the Script* under Procedure for Basic Deployment
  - In steps 10 and 11 under Procedure for Scalable Deployment

- In step 6 of *Setup Steps Performed by the Script* under [Procedure for Scalable Deployment](#)
- In steps 11 and 12 under [Procedure for SQL Server Cluster Deployment](#)
- In step 6 of *Setup Steps Performed by the Script* under [Procedure for SQL Server Cluster Deployment](#)
- In steps 10 and 12 under [Procedure for a SQL Availability Group Deployment](#)
- In step 6 of *Setup Steps Performed by the Script* under [Procedure for a SQL Availability Group Deployment](#)

# 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 4.0 Release Notes** | These release notes contain pre-installation information, database changes, and a summary of enhancements and software issues resolved in the Vantagepoint 4.0 release. |
| **Deltek Vantagepoint 4.0 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 4.0 Intelligence Content and Functionality Overview** | This guide provides an overview of the Vantagepoint Intelligence components – Analysis Cubes and Vantagepoint Intelligence Dashboards. |
| **Deltek Vantagepoint 4.0 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 4.0 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.

- 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.

# 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. |

| Dimension and Measure | Description |
|---|---|
| **Days Sales Outstanding (DSO)** | ▪ The DSO 90 and DSO 360 measures in the Accounts Receivable measure group in the Project data cube.<br><br>▪ The DSO 90 in Billing Currency and DSO 360 in Billing Currency measures in the Multicurrency folder in the Accounts Receivable group.<br><br>▪ 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)** | ▪ The DWO 90 and DWO 360 measures in the Unbilled folder in the Values group in the Project data cube.<br><br>▪ 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.<br><br>▪ 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.

> **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 Vantagepoint Intelligence module, activate it now so that setup can run. |
| 2 | Screen Designer form in Vantagepoint:<br><br>- In a hub, select **Design** in **Other Actions** or<br>- **Settings » General » Screen Designer**<br><br>**Settings » General » User Defined Components** in the desktop application | In Vantagepoint, select the user-defined fields to include in the data cubes.<br><br>See the Vantagepoint online Help for specific instructions. |
| 3 | Vantagepoint Web Server | Install, or upgrade tom 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:**

1. Run the PowerShell installation on your Vantagepoint web server to upgrade Vantagepoint and the analysis cube components.

2. 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**.

# Activate the Vantagepoint Intelligence Module

Activate the Vantagepoint Intelligence module now if it is not yet activated. The PowerShell installation will detect if the module is not activated and you will not be able to continue with the setup.

**To activate the Intelligence module:**

1.  Log in to Vantagepoint and enter modules in the Find application box.

2.  On the Module Activation form, enter your password for the Intelligence module, and click **OK**.

# 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) | <datebase>DW |
| English (International) | <datebase>DW_en-GB |
| French (Canada) | <datebase>DW_fr-CA |
| French (France) | <datebase>DW_fr-FR |
| Spanish (International) | <datebase>DW_es-ES |
| Dutch (Netherlands) | <datebase>DW_nl-NL |
| German (Germany) | <datebase>DW_de-DE |
| Portuguese (Brazil) | <datebase>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 <datebase>_en-US DW and Cubes |
| English (International) | Full Refresh <datebase>_en-GB DW and Cubes |
| French (Canada) | Full Refresh <datebase>_fr-CA DW and Cubes |
| French (France) | Full Refresh <datebase>_fr-FR DW and Cubes |
| Spanish (International) | Full Refresh <datebase>_es-ES DW and Cubes |
| Dutch (Netherlands) | Full Refresh <datebase>_nl-NL DW and Cubes |
| German (Germany) | Full Refresh <datebase>_de-DE DW and Cubes |
| Portuguese (Brazil) | Full Refresh <datebase>_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 Intelligence 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.<br><br>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 | |
| Ensure that a client secret was generated in Vantagepoint. | Verify in **Utilities » Integrations » API Authorization**. |

| Prerequisite Information | Notes |
|---|---|
| Vantagepoint Application User account and password (non-Windows Integrated) that has access to the Analysis Cubes application in Vantagepoint. | Login to Vantagepoint as the user and ensure 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 DelekVantagepointSilentInstallWrapper.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:

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   **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.**
   **A client secret must be generated in the API Authorization application in Vantagepoint in order to save cube configurations.**
   **Additionally, you will need an application (not Windows Integrated) login to save cube configurations.**

   **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 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. In addition, in order for this step to be successful, a Client Secret must be generated in the API Authorization application in Vantagepoint.

8. Enter the Vantagepoint user name and confirm the password.

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 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.

b. Checks the database for unsupported characters 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.

c. 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, <databasename>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 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 SQL Agent Refresh Job 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 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.

6. The script creates the Vantagepoint Analysis Cube database (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 errors 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 6.

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 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.

11. 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 Histo**ry, 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 a log to the Vantagepoint\logs\<date_timestamp> folder.

13. 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.

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 Cubes database.

15. 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:

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   **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.**
   **A client secret must be generated in the API Authorization application in Vantagepoint in order to save cube configurations.**

   **Additionally, you will need an application (not Windows Integrated) login to save cube configurations.**

   **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 Intelligence 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.

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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. 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. 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 user name and confirm the password.

   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 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 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.

    b. Checks the database for unsupported characters 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.

    c. 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 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 SQL Agent Refresh Job 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 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 these and exits. System labels must be modified to reduce these hierarchies to fewer than 100 characters.

7. 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 - <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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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 <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.

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:

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   **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.**
   **A client secret must be generated in the API Authorization application in Vantagepoint in order to save cube configurations.**

   **Additionally, you will need an application (not Windows Integrated) login to save cube configurations.**

   **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 user name and confirm the password.

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:

    g. 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.

    h. Checks the database for unsupported characters 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.

    i. 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, <databasename>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 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 SQL Agent Refresh Job 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 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 these and exits. System labels must be modified to reduce these hierarchies to fewer than 100 characters.

7. The script creates the Vantagepoint Analysis Cube database (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.

8. If there are errors creating the Analysis Cube database, review the error log identified in the error message and contact Deltek Support for assistance.

9. 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.

10. 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.

11. 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.

12. 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.

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

14. If this is the first time that Analysis Cube setup has been run, the script saves the Analysis Cube configurations to the Vantagepoint database.

15. 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.

16. 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.**
    **A client secret must be generated in the API Authorization application in Vantagepoint in order to save cube configurations.**

    **Additionally, you will need an application (not Windows Integrated) login to save cube configurations.**

    **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.

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 the database to identify if Multiple Currency is enabled and alerts the user to ensure that the schedule the currency exchange process server job.

b. Checks the database for unsupported characters 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.

c. 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 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 SQL Agent Refresh Job 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 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 these and exits. System labels must be modified to reduce these hierarchies to fewer than 100 characters.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

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

14. If this is the first time that Analysis Cube setup has been run, the script saves the Analysis Cube configurations to the Vantagepoint database.

15. 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.

16. 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 .\DeltekVantagepoint.ps1 –SilentInstall <path_to_silent_install.xml>.

2. The installer should run without asking for any prompts.

3. When then 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 **DeltekVantagepoint.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 appended as well.

- The **Full 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 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.

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**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**.

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## 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:**

1. In Excel, connect to the Vantagepoint Project or General Ledger data cube. An .odc connection is creating during the connection process.

2. Use Windows Explorer to navigate to the following location:

    c:\Users\<username>\My Documents\My Data Sources

3. 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.

4. On the shortcut menu, click **Edit in Notepad**.

5. 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>

6. 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. | Ensure that you have upgraded the Vantagepoint database tier installation to the current version. |
| | 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. |
| 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 *Vantagepoint* Cubes | 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.** |
| | 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. |
| Apply Cubes Configurations | 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. |

# 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. | 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 table of the SQL Agent job step properties dialog.<br><br>If you need to obtain the log for a currently running job, use the following PowerShell script in the Windows PowerShell ISE:<br><br>`$RefreshAgentJobName = "Full Refresh <database>_<language> DW and Cubes"`<br><br>`$DBServer = "<database_server>"`<br><br>`(Invoke-Sqlcmd -Query "EXEC dbo.sp_help_jobsteplog @job_name = N'$RefreshAgentJobName', @step_id='1';" -ServerInstance "$DBServer" -Database "msdb" - MaxCharLength 10000000).log` |
| You receive and error similar to the following:<br><br>*"WinRM cannot process the request. The following error occurred while using Kerberos authentication: Cannot find the computer <database_server>"*<br><br>*"The WinRM client cannot process the request. Default authentication may be used with an IP address under the following conditions:"* | 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 for exist for the FQDN of the server (hostname.company.com) and if using a Custom DNS alias, an Alias (CNAME) record should be created. |
| You receive the following error after entering the Vantagepoint username and password required to save cube configurations:<br><br>`"error": "invalid_clientId", "error_description": "Client_id or Client_secret is invalid."` | 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. |

# 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** | Complete Analysis Cubes configuration as needed:<br>▪ Select or hide the dimensions and measures to populate the data cubes.<br>▪ Create, delete or modify key performance indicators (KPIs).<br>▪ Create calculated measures.<br>▪ Set up currency exchange information.<br>See the Vantagepoint online Help for more information. |
| Screen Designer form in Vantagepoint:<br>▪ In a hub, select **Design** in **Other Actions** or<br>▪ **Settings » General » Screen Designer**<br>**Settings » General » User Defined Components** in the desktop application | Create or select user-defined fields to populate the data cubes.<br>See the Vantagepoint online Help for more information and instructions. |

> **Attention:** If you hide (clear) a measure or dimension or delete a KPI required by any of the Vantagepoint Intelligence Dashboards that you have created, you may receive errors when publishing those workbooks. Be sure to review existing workbooks before making any cube configuration changes.

You can access Analysis Cubes configuration only if you purchased and activated the Vantagepoint Intelligence module.

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

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 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:**

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 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:**

1. Access the data pump URL (https://<IISServerFQDN>/<OLAPVirtual>/msmdpump.dll).
2. Go to Internet Explorer Advanced Settings.
3. 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.

# Chapter 6: Vantagepoint Intelligence Installation and Configuration

With Vantagepoint Intelligence Server and Desktop (referred to as Tableau Server and Tableau Desktop, products of Tableau Software, Inc., in this guide), you can use your Vantagepoint database (SQL Server) and also the Vantagepoint Project and General Ledger Cubes data sets (Analysis Services) as data sources to create graphical performance dashboards.

You can publish these performance dashboards to Tableau Server via the Vantagepoint Intelligence application and view them as dashparts on the Vantagepoint dashboard. You must complete the installation and configuration steps in this chapter to use Tableau Server/Tableau Desktop with the Vantagepoint data sources.

## Note on Terminology

Tableau uses the following key terms in its software and supporting documentation:

- **Workbook**: A workbook is a web page that functions as a container for displaying a set of views.

- **View**: A view is a chart or table that provides a graphical representation of the values of the critical metrics that you select for that chart or table.

As you use Tableau, you may encounter the following additional term:

- **Site**: A logical security separation of workbooks, views, and users. Sites provide a way to segregate workbooks. For example, you might want two different databases (a production database and a test database), different languages, or perhaps different organization units or business groups. For more information, see About Tableau Sites.

## Before You Begin

The Tableau server and desktop software is being provided as a means for creating workbooks against your Vantagepoint data sources.

You must also meet the following additional requirements:

- If you are a previous user of Vision Performance Management and have Tableau Server 9.3.5 installed and still need this installation for Vision, **do not** upgrade that installation to Tableau Server  2020.3 as this version of Tableau is not compatible with Vantagepoint. Also, do not attempt to install Tableau Server 2020.3  side by side with 9.3.5, as this is not supported.

- If you no longer need Tableau Server 9.3.5:

  - You must deactivate the license on the Tableau 9.3.5 server before uninstalling. For more information, see Deactivate Tableau License. You will use the same license key when you install and register Tableau Server 2019.

  - If you will use the same server, you must uninstall and completely remove the previous version of the Tableau Server. For more information, see Completely Remove a Previous Instance of Tableau.

  - You must also ensure that the existing server meets the hardware requirements of Tableau Server 2020.3, which are significantly higher than Tableau Server 9.3.5. See Tableau Server Technical Specifications for more information.

- You will also need to uninstall Tableau Desktop and install the newly supported version. If Tableau Desktop 9.3.5 is needed, both versions can be installed on the workstation.

> **Warning:** Make sure you have backups of your workbooks before you attempt to upgrade them to the new version.

- The Tableau server installation will provide a failure message if the system does not meet the minimum requirements, and you will not be able to proceed with the installation.

  - **Licensing**: You must have a license for the Tableau Server. The Tableau Server and Desktop license keys are provided by Deltek. If you have not received them, contact your Account Manager.

  - **Authentication**: Decide on an authentication method before proceeding. If you need to change the authentication method later, you must uninstall and reinstall Tableau Server. For more information, see Tableau Security Configuration.

  - **Support**: Use Deltek Customer Care for all product support needs. You will not be able to contact Tableau Software Support directly.

# Software Requirements

Before you install Vantagepoint Intelligence, you must have the following software and configurations in place. Although every attempt is made to keep these prerequisites up to date, Deltek recommends that you verify them against the Deltek Platform Compatibility Matrix, which always has the latest compatibility information:

https://deltek.custhelp.com/ci/fattach/get/2975379/0/filename/DeltekProductSupportCompatibilityMatrix.pdf

## Supported Versions and Compatible Versions

The Platform Compatibility Matrix list both supported versions and compatible versions:

- Supported versions are the most current, actively tested technologies used to deploy Vantagepoint.

- Compatible versions are recent technologies that have been tested and used for deploying Vantagepoint in the past, but are not currently being tested. Deltek believes that they are still compatible with Vantagepoint.

| Component | Requirements |
|---|---|
| **Operating System** | <ul><li>Windows Server 2019,</li><li>Windows Server 2016, or</li><li>Windows Server 2012 R2 (Windows Server 2012 is not supported.)</li></ul> |
| **Secure Sockets Layer (SSL)** | <ul><li>A valid SSL certificate with a resolvable fully qualified domain name must be installed and configured on both the web server (IIS) and the report server for the installation to proceed.</li><li>You can use a self-signed certificate for local single server installation testing only.</li></ul> See Configure Secure Sockets Layer (SSL) for more information. |

| Component | Requirements |
|---|---|
| **Transport Layer Security (TLS)** | <ul><li>TLS 1.2 is required.</li><li>Older TLS/SSL protocols must be disabled on all Vantagepoint tiers:<ul><li>TLS 1.1/1.0 must be disabled.</li><li>SSL 2.0/3.0 must be disabled.</li><li>Once these protocols are disabled, you must restart your server.</li><li>You can also use the IISCrypto tool by Nartac Software to disable these older protocols.</li></ul></li></ul>For more information on why Deltek requires that you disable these protocols, see the following article:<br>https://blog.pcisecuritystandards.org/are-you-ready-for-30-june-2018-sayin-goodbye-to-ssl-early-tls<br>For more information on disabling protocols, see the following article:<br>https://support.microsoft.com/en-us/help/187498/how-to-disable-pct-1-0-ssl-2-0-ssl-3-0-or-tls-1-0-in-internet-informat |

# Identify Your Deployment Strategy

Before you install the server software, consider the following questions:

- Where will you install the Tableau Server software?
- What type of security will you use?
- Will Tableau Server be accessed by Internet clients?

## Where will you install the Tableau Server software?

Before you install the Tableau Server software on a server, review Tableau Server Technical Specifications.

Deltek does not recommend installing the Tableau Server software on any Deltek tier.

> **Warning:** Tableau Server has imposed hard limits for the system requirements. If your server does not meet system requirements, you will not be able to proceed with the installation. **These minimum requirements are significantly greater than those needed for previous Tableau Server versions.**

## What type of security will you use?

Although Vantagepoint does not currently support an integration with Tableau, for ease and consistency of the future integration, Deltek suggests that you choose security for Tableau Server based on the security that you implemented (or plan to implement) for Vantagepoint.

Vantagepoint supports two methods of authentication:

- **Vantagepoint Security**: If you use Vantagepoint security (application-level users and passwords), Deltek suggests that you use Local authentication when you configure Tableau Server.

- **Windows Integrated Authentication**: If you use Windows Integrated security for Vantagepoint, your users authenticate to Vantagepoint using their Active Directory login. In this case, Deltek suggests that you use Active Directory authentication when you configure Tableau Server.

If you use Windows Integrated Authentication with Vantagepoint but also have Vantagepoint security users, those users will not be able to access the Tableau Server until their domain accounts are added as Tableau users. These are only suggestions, however. You can use either Tableau Server security option, regardless of your Vantagepoint security, and you do not need to change your Vantagepoint security model to implement the Tableau Server software.

> **Attention:** For details on security, see Tableau Security Configuration.

## Will Tableau Server be accessed by Internet clients?

If your current deployment allows users to access Vantagepoint directly over the Internet (excluding access through a VPN), and users also need to access to the Tableau Web application over the Internet to view workbooks, do the following:

- Configure your firewall to allow the port used by the Tableau Server to be accessed. For more information, see Configure Tableau Server for SSL.

- Establish an Internet-accessible, fully qualified domain name for that purpose (for example, tableau.company.com). That domain name must be resolved both inside and outside the corporate network as the Tableau Server name will be the same for all clients.

# Summary of Vantagepoint Intelligence Configuration Steps

The primary steps required to configure Tableau Server are listed in the following table. If you are upgrading from Vision Performance Management, skip ahead to Upgrading Tableau Software.

| Step | Where to Perform | Description |
|------|------------------|-------------|
| 1 | Server hosting Tableau Server | Uninstall any previous version of Tableau Server. For more information, see Deactivate Tableau License and Completely Remove a Previous Instance of Tableau. |
| 2 | Server hosting Tableau Server | Identify the Tableau security configuration that you will use. |
| 3 | Server hosting Tableau Server | Install Tableau Server. |
| 4 | Server hosting Tableau Server | Configure Tableau Server for SSL (required). |
| 5 | Server hosting Tableau Server | Complete the post installation configuration steps. |

| Step | Where to Perform | Description |
|------|------------------|-------------|
| 6 | Tableau Server | Configure the Tableau Server maintenance process. |
| 7 | Add user accounts to Tableau Server | |
| 7a | SQL Server Management Studio on the Vantagepoint database server | Export Vantagepoint users to a comma-separated values (.CSV) file. |
| 7b | Tableau Server TSM | Import Vantagepoint users into Tableau Server. |
| 8 | User Desktops | Install Tableau Desktop and the necessary drivers. |
| 9 | Vantagepoint Application | Configure Vantagepoint Intelligence application to connect to the Tableau server |
| 9 | Vantagepoint Application | Test the Tableau workbooks by uploading them via the Vantagepoint Intelligence application and then viewing them on the Vantagepoint dashboard. |

# Tableau Security Configuration

During the installation and configuration of Tableau Server, you must specify the type of authentication that you will use. Deltek suggests, but does not require, that this authentication match the authentication that you are using (or plan to use) for your Vantagepoint implementation.

- If you are using Windows Integrated Authentication with Vantagepoint, configure Tableau Server for Active Directory security.

- If you are using Vantagepoint security, select Local (Tableau) authentication. This is configured via the User Authentication section of the Tableau Server Configuration dialog during the initial configuration of Tableau server and cannot be changed except to uninstall and re-install the Tableau Server software.

## Active Directory

After you add Active Directory users to Tableau Server, your users can view performance dashboards in Vantagepoint and directly in Tableau Server. For more information, see Add Domain Users and Groups.

If you have users in domains outside of the domain in which the Tableau Server is a member, and if those users require access to Tableau Server, a Domain Trust relationship must exist between the domains such that the server domain trusts the user domain. To enable your users to be automatically logged in to the Tableau Server using their domain credentials, you need to configure the Tableau Server setting **Enable automatic sign-in using Microsoft SSPI (Security Support Provider Interface)** using the Tableau Services Manager. See Post Installation Configuration for the steps that you complete to configure this setting.

## Local Authentication

If you use Local (Tableau) authentication, and your users need direct access to Tableau Server (outside of Vantagepoint dashboards), you will need to create a username and password for each user that will

need access to Tableau. To streamline this process, you can export your Vantagepoint usernames and import them into Tableau Server. For more information, see Add Local (Tableau) Users.

## Changing Tableau Security Configuration

> **Warning:** If you install Tableau Server and then need to change the security configuration, it is not possible to save any Tableau configuration settings or data. You must fully reconfigure the environment.

If you install Tableau Server and later need to change the security configuration (from Active Directory to Local Authentication or the reverse), you must uninstall the Tableau Server software and also remove the following Tableau Server installation folders:

- **C:\Program Files\Tableau** (Substitute the appropriate installation drive letter and path, as appropriate.)
- **C:\ProgramData\Tableau** (The ProgramData folder is a hidden Windows folder, so you will need to change your folder and view settings to display it.)

# Completely Remove a Previous Instance of Tableau

You must first deactivate your existing Tableau Server 9.3.5 license so that it can be used with the new version. Then you can follow the steps outlined in the Tableau knowledgebase article cited below.

## Deactivate Tableau License

**To deactivate the license on the Tableau server:**

1. Open the Manage Product Keys application from the Deltek Vision Performance Management program group.
2. Select your existing license(s) and click **Deactivate**.
3. After all licenses are deactivated, you can proceed to uninstall.

## Uninstall Tableau Server

Follow the instructions for **Option 1 – For Tableau Server 2018.1 and earlier versions on Windows**, in the following Tableau knowledgebase article:

https://kb.tableau.com/articles/howto/uninstal-tableau-server

# Download Tableau Software

Use the DownloadVantagepointIntelligence sub-switch to download the Vantagepoint Intelligence (Tableau) server and desktop installation files. The DownloadVantagepointIntelligence sub-switch is part of the Deltek Vantagepoint installation process. For more information on installation options and how to use the PowerShell installation, see the *Deltek Vantagepoint Installation and Configuration Guide.*

**To run the script with the DownloadVantagepointIntelligence sub-switch:**

1. On the operating system Start menu, locate the Windows PowerShell Console.
2. Run the console using the **Run as Administrator** option on the right-click context menu.

3. From the installation directory Scripts folder on your Vantagepoint web/application server (for example, <drive>:\Program Files\Deltek\Vantagepoint\Scripts), enter **.\DeltekVantagepoint.ps1 -**IntelligenceSetupOption **DownloadVantagepointIntelligence**.

4. Enter your Deltek Support username and password.

5. The script checks prerequisites and verifies your access to Deltek Vantagepoint Intelligence. If you do not have a valid module code for Vantagepoint Intelligence, you will not be able to download the software.

6. The download of DeltekVantagepointIntelligence_<build>.zip starts. The download location of the zip file is <drive>:\Program Files\Deltek\Vantagepoint\Support\Intelligence.

7. Once this file download is complete, the files are extracted to the same directory.

## Setup Steps Performed by the Script

After you enter the information needed to run DeltekVantagepoint.ps1 using the DownloadVantagepointIntelligence sub-switch, the script downloads the files to the \Support\Intelligence directory and extracts the files.

# Install and Configure Tableau Server

Before you begin the installation process, read the "Tableau Server on Windows" section of the [Tableau Server Online Help](#). Make sure to select the correct version of Tableau from the **Version** drop-down list. Focus on the "Getting Started with Tableau Server" and "Install and Configure" sections so that you have a thorough understanding of the installation and configuration process.

To install and configure the Tableau Server software, follow the instructions in the "Install and Configure" section of "Tableau Server on Windows" in the Tableau Online Help.

**The following steps summarize the process:**

1. If you are installing on a server that hosts a previous version of Tableau Server, see [Completely Remove a Previous Instance of Tableau](#) for more information.

2. Download <setup> using the Deltek Vantagepoint PowerShell installation <name of switch>.

3. **Running Setup**: This section describes how to install the Tableau Server software using the server setup and TSM web interface. This is located under **Contents » Deploy » Install and Configure Tableau Server » Install TSM** in the Tableau Server Online Help. A summary of the installation steps follows:

   a. Run the <name of installer> installation package.

      The setup process will complete a system verification process to ensure that the server meets the minimum hardware requirements. (For more information, see [Tableau Server Technical Specifications](#).)

   b. Click **Next**.

      > **Note:** Minimum hardware requirements that are allowed are considered a "Proof of Concept," not a "Production" installation.

   c. Select the **Create a new Deltek Vantagepoint Intelligence installation** option, click **Next**, and then click **Install**.

   d. On the Start Tableau Services Manager (TSM) screen, click **Next**,

e.   On the TSM web interface, enter your domain credentials (you must be a member of the local administrators group), and click **Sign In**.

4.   **Activate Tableau Server:** Activate Tableau Server with the license key that Deltek provides.

5.   **Configure Initial Node Settings**: Use the TSM web interface to configure Tableau Server for your environment. The following notes provide additional guidance for making key entries:

   ▪   **Identity Store**: Select **Local** (Tableau authentication).or **Active Directory** (recommended). If you are using Active Directory, you enter the Fully Qualified Domain and the NetBIOS nickname of the domain. For more information, see Tableau Security Configuration.

---

**Attention:**   When you complete the Tableau Server installation and are ready to Configure Vantagepoint Intelligence, if you chose "Local Authentication" as the Identity Store in Tableau setup, you will select the **Local (Tableau)** radio button as the Authentication Type when configuring Vantagepoint Intelligence. If you chose "Active Directory" as the Identity Store, you will select the **Active Directory** radio button.

---

**Warning:** If you install Tableau Server and later need to change the security configuration (from Active Directory to Local Authentication or the reverse), you must uninstall the Tableau Server software and also remove the Tableau Server installation folders. None of your configuration will be preserved. You must then reinstall and reconfigure Tableau Server.

---

   ▪   **Run As Service Account**: This entry must be a domain account that has rights to the Vantagepoint database which will be used as the Data Source for your published workbooks. Whether you are using Active Directory or Local authentication, this account must be a domain account with rights to the Vantagepoint database.

   ▪   **Gateway Port**: Choose the port that Tableau Server monitors for requests. The default is 80 if IIS is not installed on the Tableau server, and 8000 if it is installed. Note that an SSL certificate is required to be installed and configured after the installation is completed so this port will change to the SSL port.

   ▪   **Include Samples**: If you select this setting, Tableau sample workbooks are installed. Later, you will need to delete them manually from Tableau Server. It is recommended that you do not select this check box when you configure your production instance of Tableau Server.

6.   **Initialize Tableau Server**: After you enter the above information, click the **Initialize** button. The initialization process can take some time to finish. After the process is completed, you are prompted to create a Tableau Server Administrator account. Click **Continue**.

## Configure Tableau Server for SSL

Since your Vantagepoint server is configured for SSL (https), it is required that you also configure the server hosting Tableau Server with an SSL certificate.

**To configure the Tableau server for SSL:**

Refer to the SSL section in the Tableau Server Online Help for steps on configuring SSL.

When you configure the server hosting Tableau Server for SSL, it only accepts requests on the default SSL (https) port of 443.

Tableau does not support the configuration of a non-standard SSL port.

---

## Apply Required TLS 1.2 Changes to the Tableau Server

If you have not already done so, ensure the required TLS configurations changes are made to your Tableau server as described in the Software Requirements. Failure to do so will cause workbooks uploads and views to fail, due to mismatched TLS configurations between the Vantagepoint Web Server and the Tableau Server.

## Post Installation Configuration

Refer to the Post Installation Tasks in the Tableau Server Online Help for additional configuration tasks.

1. You must ensure the SQL Server and Analysis Services drivers are installed on the Tableau Server and client workstations that will be connecting to the Vantagepoint data sources.

   You can download the latest drivers from the following links:

   ▪ **SQL Server**:

     https://downloads.tableau.com/drivers/microsoft/odbc/x64/msodbcsql.msi

   ▪ **Analysis Services**:

     https://downloads.tableau.com/drivers/microsoft/2014/x64/SQL_AS_OLEDB.msi

   > **Attention:** Tableau drivers are significantly out of date but they do not support the latest drivers provided by Microsoft.  If you have connection issues from either Tableau Server or Desktop, check to ensure you are using the drivers above.

2. Ensure that the Tableau server '**Run as**' account has the necessary rights to the data sources for which workbooks will be published (for example, read rights to the Vantagepoint database) and added to the Service Accounts role for the Vantagepoint Analysis Services database (this role is automatically created when the Analysis Cubes are deployed).  These rights can be granted using SQL Server Management Studio.

   By default, published workbooks accessed from Tableau Server will be accessed by the account running the Tableau Server.

3. Configure the Tableau Server data cache settings to always use the latest data

   a. Open a command prompt on the Tableau Server using 'Run as Administrator'.

   b. Enter the following commands:

      1. tsm data-access caching set –r 0

         > **Note:** If not logged on as the Tableau Server run as account you may need to enter the *–username <Run As Account> and –password <password>* parameters to the command.

      2. *tsm pending-changes apply* to restart the Tableau Server services.

      3. After the services are restarted run the following to confirm the setting:

         tsm data-access caching list (the value should be 0)

4. If you are using Active Directory, optionally configure "Enable automatic sign-in using Microsoft SSPI" to allow automatic sign-in for your users:

a.   On the Tableau Server, log in to the Tableau Services Manager (TSM)
   (https://<server>:8850).

> **Note:** The TSM application is configured with a self-signed SSL certificate registered to
> the machine where it is installed. You will receive an SSL error if you attempt to access
> TSM remotely.

b.   Click the Configuration menu.

c.   On the navigation menu, select **User Identity & Access**.

d.   Click the Authentication Method tab.

e.   Select the **Enable automatic sign-in using Microsoft SSPI (Security Support Provider
   Interface)** check box.

f.   To restart the Tableau Server, click the **Pending Changes** button, select **Apply Changes
   and Restart**, and then click **Confirm**.

   The restart will take several minutes to complete.

5.   If using Local (Tableau) authentication, you need to configure Tableau to create Trusted Tickets
   for each Vantagepoint web/application server that will access the Tableau Server:

a.   On the Tableau Server, log in to the Tableau Services Manager (TSM)
   (https://<server>:8850).

b.   Click the Configuration menu.

c.   On the navigation menu, select **User Identity & Access**.

d.   Click the Trusted Authentication tab.

e.   Enter the IP address of each trusted host (Vantagepoint web/application server) to the
   Trusted Hosts list.

f.   To restart the Tableau Server, click the **Pending Changes** button, select **Apply Changes
   and Restart**, and then click **Confirm**.

   The restart will take several minutes to complete.

6.   Import (or add) your Vantagepoint users to Tableau Server.

   See Add User Accounts to Tableau Server in this guide.

7.   Set up anti-virus exclusions.

   To increase performance and minimize issues during Tableau Server installations and upgrades,
   complete the steps in the following article, to set exclusions on the Tableau Server directories:

   http://kb.tableausoftware.com/articles/howto/improving-performance-by-using-antivirus-exclusions

8.   Set up the Tableau Server Maintenance Process to ensure the following:

   ▪   The application is always fresh (restarted periodically).

   ▪   You have a current backup of the Tableau Server repository (database).

   ▪   Logs are cleaned up and archived.

9.   Install Tableau Desktop on users' workstations.

10.  Configure access to the Tableau Server in Vantagepoint Intelligence (**Settings » General »
   Intelligence**) using these settings:

| Setting | Enter this information or complete this action |
|---------|-----------------------------------------------|
| **Port** | 443 (required) |
| **Server Name** | Fully qualified server name matching the SSL certificate installed on the Tableau Server. |
| **Authentication Type** | Local (Tableau) or Active Directory |
| **User Name / Password** | An administrative account created in Tableau server with the rights to Publish workbooks. |
| **Image Path** | The path where images for workbooks are stored. |
| **Test Configuration** | Click this button to ensure that Vantagepoint can successfully connect to the Tableau Server. |
| **View Error Log** | Link to the error log for troubleshooting connection or workbook uploading issues. |

11. Click the **Upload Workbook** button in the Vantagepoint Intelligence application to upload workbooks to Tableau Server.

12. View workbooks as dashboards using the Vantagepoint Dashboards module.

# Upgrading Tableau Software

As mentioned earlier, **DO NOT** upgrade from Tableau Server 9.3.5 to 2020.3. Upgrades from Tableau Server 9.3.5 or prior are not supported. You must completely uninstall and remove Tableau Server 9.3.5 before attempting to install 2020.3 for use with Deltek Vantagepoint.

> **Attention:** For more information, see Completely Remove a Previous Instance of Tableau.

If you are upgrading from Tableau Server to a newly supported release of Tableau, follow the steps outlined in Upgrade Tableau Server.

When upgrading to a newer supported version of Tableau, you must update the following Tableau components:

- Tableau Server software
- Tableau Desktop software

The Tableau Server and Desktop software must be the same version.

To upgrade Tableau Server, you install the new version while your existing version is running. Then, run an upgrade script to switch over to the new version. This reduces the amount of downtime for users because the server continues to run while you install the new version. You only stop the server to run the upgrade script.

The Tableau software for Vantagepoint Intelligence is specifically branded for Deltek, and Deltek must be your source for that software. **Do not** attempt to upgrade Tableau with software from a source other than Deltek, such as from Tableau directly.

# Configure Vantagepoint Intelligence

After you complete the installation and configuration of Tableau server, you must configure Vantagepoint Intelligence to connect to Tableau. In Vantagepoint, navigate to **Settings » General » Intelligence** and enter the Tableau server connection information in the **Configuration** section.

> **Attention:** When Tableau Server is configured for Active Directory authentication, you will still see "Local Authentication" being used on the Authentication Method tab in **TSM » Configuration » User Identity and Access**. "Local Authentication" does not mean that Tableau server is configured for Local Authentication; it means that Tableau server will locally authenticate your Active Directory users (which you have to import into Tableau server – refer to "Add User Accounts to Tableau Server) rather than using an External Authentication method which are available via the drop-down. Deltek does not support external authentication methods with Tableau.

The field definitions are as follows:

- **Port:** SSL is required and Tableau only supports SSL port 443. The port value in pre-filled.

- **Server Name:** Enter the FQDN for the Tableau server that matches the SSL certificate configured.

- **Authentication Type:** This setting **MUST MATCH** the Tableau server security chosen during the installation. If you configured Tableau server to use Local Authentication, select the **Local** radio button. If you configured Tableau server to use Active Directory authentication, select the **Active Directory** radio button. Refer to Install and Configure Tableau Server, step 5 for more information or log in to the Tableau Server TSM web application in this menu path: **Configuration » User Identity and Access » Identity Store**.

- **User Name:** Enter a valid Tableau user account that is a member of the Server Administrator role. If Tableau Server is configured for Local authentication, this will be a local user account created in Tableau Server. If Tableau Server is configured for Active Directory authentication, this will be a domain account.

- **Password:** Enter the password associated with the User Name.

- **Image Path:** Enter the network path where images associated with Tableau workbooks will be stored.

After you enter all of the configuration information, click **Test Configuration** to ensure that Vantagepoint Intelligence can correctly authenticate with Tableau Server. If you receive an error message, click **View Error Log** and then contact Deltek Support for assistance. You should also ensure that you can successfully log in to the Tableau server web application using the username/password entered.

## Create and Publish Workbooks to Tableau Server

Your users will use Tableau Desktop to create workbooks, which they can then upload to Tableau Server using the Vantagepoint Intelligence application (**Settings » General » Intelligence**).

# Add User Accounts to Tableau Server

You can add users to Tableau Server using an export-import process, or you can set up users (or groups, if you are using Active Directory) manually, one at a time, in Tableau Server. You must be either a System Admin or Site Admin to add users to Tableau Server.

# Add Domain Users and Groups

If you use Active Directory security, you must add your domain users to Tableau Server so those users can access the Tableau Server web application and publish workbooks. After you add your Domain users (or groups) to Tableau server, they can access the Tableau web application or (if granted permissions) publish workbooks to the server.

You can also import Active Directory Groups to Tableau Server for easier management.

> **Attention:** For more information, see <u>Create Groups via Active Directory</u>.

# Add Local (Tableau) Users

If you configured Tableau Server to use Local Authentication, you must create Local (Tableau) security accounts for your users. To simplify this process, you can export your Vantagepoint security usernames using the process below and then import the usernames to Tableau Server.

# Export Vantagepoint Users

In SQL Server Management Studio (SSMS), execute the following SQL queries against your Vantagepoint database to create a .csv export file that contains all of your users. If appropriate, you can modify these queries to filter users further by role or by other criteria.

The users that you export are filtered as follows:

- **If you use Local (Tableau) authentication**: This query only includes "non-disabled" Vantagepoint Security (non-Active Directory) logins.
- **If you use Active Directory authentication**: This query only includes "non-disabled" Active Directory logins for which the domain has been specified in Vantagepoint security settings.

All users who meet this criteria are exported.

After you execute the query in SSMS, you can right-click in the results pane, select **Save results as**, and then choose a .csv file.

## Local Authentication Query

```
SELECT  s.username as Username,
'password' as Password,
e.firstname + ' ' + e.lastname as Fullname,
'Explorer' as LicenseLevel,
'None' as Administrator,
'No' as Publisher,
e.email as Email
FROM EM e
INNER JOIN Seuser s
 ON e.Employee = s.employee
WHERE s.DisableLogin <> 'Y' and s.Password <> 'integrated'
```

> **Note:** When using Local (Tableau) authentication, a password is required. The password column in the export file will default to "password" for all users. After users log in to Tableau Server, they must change their Tableau Server password under **User Preferences**. Alternatively you can modify the export file and set a password for your users.

## Active Directory Query

```
SELECT  s.Domain + '\' + S.username as Username,
' ' as Password,
e.firstname + ' ' + e.lastname as Fullname,
'Interactor' as LicenseLevel,
'None' as Administrator,
'No' as Publisher,
e.email as Email
FROM EM e
INNER JOIN Seuser s
 ON e.Employee = s.employee
WHERE s.DisableLogin <> 'Y' and s.Password = 'integrated'
```

## CSV File Format

The format of the .csv file is as follows.

```
Username,Password,Full Name,License Level,Administrator,Publisher,Email
```

(For more information, see https://onlinehelp.tableau.com/current/online/en-us/csvguidelines.htm.)

Example Active Directory export file:

```
INETTEST2K8N\VPMUser1,,"VPM User 1",Interactor,None,No,VPMUser1@Inettest2k8n.com
```

Example Local (Tableau) export file:

```
ADMIN,password,"William Apple",Explorer,None,No,admin@domain.com
JAMESB,password,"James Bartlett",Explorer,None,No,JamesB@domain.com
```

The following table describes the data in the export file in more detail.

| Data Item | Description |
|---|---|
| **Username** | This field contains the user's login name. If you use Active Directory, the format is <Domain>\<Username>. If you use Local (Tableau) authentication, the format is <username>. |
| **Password** | This field contains the user's login password, if applicable.<br>▪ If you use Active Directory, this field is blank.<br>▪ If you use Local (Tableau) authentication, this field contains **password**, the default password. |

| Data Item | Description |
|---|---|
| | Users can change their passwords on the User Preferences page after they successfully log in to Tableau Server. |
| **Full Name** | This field contains the full name of the user, for display purposes. |
| **License Level** | This field contains the user's Tableau license level, which controls the user's level of access to the workbooks: **Creator**, **Explorer**, **Viewer**, or **Unlicensed**. The default value is **Explorer**. |
| **Administrator** | This field contains the user's Tableau Server administrative level: **System**, **Site**, or **None**. The default value is **None**. |
| **Publisher** | This field indicates if the user has the access necessary to publish workbooks: **Yes** or **No**. The default value is **No**. |
| **Email** | The user's email address. |

> **Note:** You can modify the values in the **License Level**, **Administrator**, and **Publisher** fields before performing the import if you have specific users who require additional rights. You can also modify rights in Tableau after the import.
>
> For more information, see the Tableau Online help: http://onlinehelp.tableau.com/

## Import Users into Tableau Server

The Default site is created by the Tableau Server configuration. You can create additional sites to suit your specific requirements (for example, departments, offices, business units, and so on).

You can perform the import at the Default site level and then modify the site membership for a single user or groups of users after the import using Site Membership, or you can import at the site level directly. If the account performing the import is a site administrator in Tableau, you can only import users to that site.

**To perform the import:**

1. Open a browser and enter the URL for Tableau Server.

2. Log in to Tableau Server using an account that is either a Site or Server Administrator and click **Sign In**.

3. If prompted and, if applicable, select a site.

   You have the ability to import users to a specific site or to the default site and assign site membership later on.

   - If you use Active Directory authentication and have allowed "Enable automatic sign-in using Microsoft SSPI," you are immediately prompted to choose the Tableau site to log in to.

   - If you use Local (Tableau) authentication, a login prompt displays initially.

4. On the navigation menu, click the **Users** menu.

5. Click the **+ Add Users** button.

6. Click the **Import from File** option.

7. Click **Browse** and select the.csv file.

8. Click **Import Users**.

9. When a dialog box displays, indicating the success or failure of the operation, click **Exit**.

## After the Import

As indicated previously, you may have several Tableau sites. If you import all users at the Default site of Tableau Server, follow the steps below to modify the site membership for your users.

To modify the site membership, site role (license level), or administrator rights for one or more users, select the users and then select the Actions menu to set the various options.

## Ongoing User Maintenance

There is no automatic synchronization functionality between users in Vantagepoint and Tableau Server. As new users are added to, removed from, or disabled in Vantagepoint, you must add, remove, or disable them manually in Tableau Server.

# Maintain the Tableau Server

Complete the steps below to set up the nightly Tableau Maintenance PowerShell script that backs up the Tableau repository, archives current logs, and performs cleanup operations such as removing old files.

**To maintain the Tableau Server:**

1. Copy the PowerShell script below into Windows PowerShell ISE.

2. Modify the highlighted parameters as appropriate:

   ▪ **$global:LogFilePath**: Specify the location where maintenance script logs are maintained.

   ▪ **$CopyFilesToRemote**: Set to **true** to copy the backup to a remote file share. The default value is **false**, meaning that backups will be maintained on the Tableau server.

   ▪ **$RemoteBackupsLocation**: If CopyFilesToRemote is **true**, this is the share path for the remote network location to store backups.

   ▪ **$DaysToKeep**: By default, the script deletes backup and log files older than 30 days.

   ▪ **$PurgeOldFiles**: If **true**, files older than the specified value are deleted.

3. Save the file as TableauMaintenance.ps1 (or similar) in a location on the server that will be accessible to the account running the script via Task Scheduler. The account running the script must also be a local administrator on the server in order to bypass TSM prompting for credentials.

4. Use Windows Task Scheduler to schedule the script to run at an appropriate time for your organization.

> **Tip:** If you are unfamiliar with Task Scheduler, see the following Microsoft Technet article: (http://technet.microsoft.com/en-us/library/cc721871.aspx).

## Tableau Server Maintenance Script

Use the **Task** and **Maintenance** PowerShell scripts below to create the nightly maintenance task. Copy the Maintenance Script to Windows PowerShell ISE, update the highlighted sections as appropriate, and save locally on the Tableau Server as TableauCleanup.ps1 (or similar name). After you save the

Maintenance Script, copy the Task Script to Windows PowerShell ISE, update the highlighted sections as appropriate, and execute the script to create the scheduled task.

## Task Script

```
# PowerShell Script to create schedule task for Tableau Maintenance

# Modify highlighted as appropriate for your installation


# Specify what program to run and with its parameters

$Action= New-ScheduledTaskAction -Execute "PowerShell.exe" -Argument "<Path to Script>\TableauCleanup.ps1"

# Specify the trigger settings

$Trigger= New-ScheduledTaskTrigger -At 12:00am -Daily

# Specify the user account to run the task

$Principal = New-ScheduledTaskPrincipal -LogonType S4U -UserId "<Tableau RunAs Account>"

# Create the scheduled task

Register-ScheduledTask -TaskName "Tableau Nightly Maintenance" -Trigger $Trigger -Principal $Principal -Action $Action -Force
```

## Maintenance Script

### <-- Maintenance Script start -->

```
# Portions of script credit: https://github.com/glenrobinson72/Tableau-Powershell-Scripts/tree/master/Tableau-Server-Backup

# This variable will set the location of the log file generated by the maintenance script each time it is run.

# Edit the path to be a valid folder location on the Tableau server.

$global:LogFilePath = "c:\tableaubackup\TableauMaint_" + (Get-Date -Format "yyyyMMdd_HHmm") + ".txt"


# This function is responsible for generating the log file

function global:Deltek-Common-Writelog {


    param (

        #[Parameter(Mandatory)]

        [Parameter()]

        [string]$Message,


        [Parameter()]

        [ValidateSet('1','2','3','4','5')]

        [int]$Severity = 5, ##      Default to a informational severity, Override otherwise
```

```
        [Parameter()]
        [boolean]$WriteToHost = $true,     #Default is Write Message to Host, Override
otherwise

        [Parameter()]
        [boolean]$MessageIsError = $false,  #If Error, Foreground will be Red

        [Parameter()]
        [boolean]$MessageIsWarning = $false  #If Error, Foreground will be Yellow
    )


    #Remove Password from logged message
    $Message = $Message -replace "(?<=-Password\s)[^\s]+"


    [string]$strLine = (Get-Date -Format "M/dd/yyyy HH:mm:ss") + " [" +
$Severity.ToString() + "] " + $Message


    if ($WriteToHost)
    {
        if ($MessageIsError -or $Severity -eq 1)
        {
            Write-Host $Message -ForegroundColor Red
        }
        elseif ($MessageIsWarning -or $Severity -eq 2)
        {
            Write-host $Message -ForegroundColor Yellow
        }
        elseif ($Severity -eq 3)
        {
            Write-host $Message -ForegroundColor Cyan
        }
        elseif ($Severity -eq 4)
        {
            Write-host $Message -ForegroundColor Green
        }
        elseif ($Severity -eq 5)
        {
            Write-host $Message -ForegroundColor White
        }
```

```
        else
        {
            Write-host $Message
        }
    }


    ## Ensure that $LogFilePath is set to a global variable at the top of script
    if ($global:LogFilePath -ne $null) {
        $strLine | Out-File -FilePath $global:LogFilePath -Append
    }
}


# This function will perform the nightly maintenance. Edit the specified variables as
appropriate.
function tableau_nightly_maintenance {


    $server = $env:COMPUTERNAME


    # Edit the following 4 variables as appropriate.
    $CopyFilesToRemote = $False
    $PurgeOldFiles = $True
    $RemoteBackupLocation = ""
    $DaysToKeep = 30


    $date = Get-Date -Format "yyyyMMdd_HHmmss"
    $TSM_server        = "https://"+$server+":8850"
    $zipfile           = "logs_"+ $date +".zip"
    $backups_file      = "tabsvc_"+ $date
    $settings_file     = "ServerSettings.json"


    global:Deltek-Common-Writelog "Running Tableau_Nightly_Maintenance on $server..."
-WriteToHost $false
    global:Deltek-Common-Writelog "" -WriteToHost $false
    global:Deltek-Common-Writelog "TSM Server: $TSM_server" -WriteToHost $false
    global:Deltek-Common-Writelog "Copy files to remote: $CopyFilesToRemote" -
WriteToHost $false
    global:Deltek-Common-Writelog "Remote backup folder: $remote_Backups_Folder" -
WriteToHost $false
    global:Deltek-Common-Writelog "Purge old files: $PurgeOldFiles" -WriteToHost
$false
    global:Deltek-Common-Writelog "Days to keep: $DaysToKeep" -WriteToHost $false
```

```
    # Get Folder Locations

    $backups_folder = &tsm configuration get -k basefilepath.backuprestore

    global:Deltek-Common-Writelog "Backup/Restore path: $Backups_Folder" -WriteToHost
$false

    $logs_folder    = &tsm configuration get -k basefilepath.log_archive

    global:Deltek-Common-Writelog "Logfile path: $logs_folder" -WriteToHost $false

    global:Deltek-Common-Writelog "" -WriteToHost $false


    # Export Settings File

    global:Deltek-Common-Writelog "Exporting server settings..." -WriteToHost $false

    $retval = &tsm settings export -f $backups_folder'\'$settings_file

    global:Deltek-Common-Writelog "Settings exported to:
$backups_folder/$settings_file" -WriteToHost $false

    global:Deltek-Common-Writelog "" -WriteToHost $false


    #Run Zip Logs

    global:Deltek-Common-Writelog "Running Tableau ziplogs..." -WriteToHost $false

    $retval = &tsm maintenance ziplogs -a -f $zipfile

    global:Deltek-Common-Writelog "Zipped logs located at: $logs_folder/$zipfile" -
WriteToHost $false

    global:Deltek-Common-Writelog "" -WriteToHost $false


    # Run Clean Up

    global:Deltek-Common-Writelog "Running Tableau cleanup..." -WriteToHost $false

    $retval = &tsm maintenance cleanup -l -t -q

    global:Deltek-Common-Writelog "Tableau cleanup completed." -WriteToHost $false

    global:Deltek-Common-Writelog "" -WriteToHost $false


    # Run backups

    global:Deltek-Common-Writelog "Backing up Tableau repository..." -WriteToHost
$false

    $retval = &tsm maintenance backup -f $Backups_file

    global:Deltek-Common-Writelog "Tableau backup located at:
$backups_folder/$backups_file" -WriteToHost $false

    global:Deltek-Common-Writelog "" -WriteToHost $false


    If ($CopyFilesToRemote -eq $True)
     {
       global:Deltek-Common-Writelog "Copying files to: $RemoteBackupLocation" -
WriteToHost $false
```

```
      copy-Item -path $logs_folder"\"$zipfile -destination
$RemoteBackupLocation$zipfile -Force

      copy-Item -path $backups_folder"\"$settings_file -destination
$RemoteBackupLocation$settings_file -Force

      copy-Item -path $backups_folder"\"$backups_file".tsbak" -Destination
$RemoteBackupLocation$backups_file".tsbak" -Force

    }


    # Delete old backup and zip log Files

    If ($PurgeOldFiles -eq $True)

     {

      # Delete local copies of backups and zip logs

      $oldfiles = Get-ChildItem $backups_folder -file | Where-object {$_.LastWriteTime
-lt $date.AddDays(-$DaysToKeep)}

      if($oldfiles.count -gt 0)

       {

        global:Deltek-Common-Writelog "Purging backups older than $DaysToKeep..." -
WriteToHost $false

        $oldfiles.Delete()

       }

      # Delete local copies of zip logs

      $oldfiles = Get-ChildItem $logs_folder -file | Where-object {$_.LastWriteTime -
lt $date.AddDays(-$DaysToKeep)}

      if($oldfiles.count -gt 0)

       {

        global:Deltek-Common-Writelog "Purging logs older than $DaysToKeep..." -
WriteToHost $false

        $oldfiles.Delete()

       }


      # Delete Remote copies of Old files

      if ($CopyFilesToRemote -eq $True)

       {

        $oldfiles = Get-ChildItem $RemoteBackupLocation -file | Where-object
{$_.LastWriteTime -lt $date.AddDays(-$DaysToKeep)}

        if($oldfiles.count -gt 0)

         {

          global:Deltek-Common-Writelog "Purging remote backups older than
$DaysToKeep..." -WriteToHost $false

          $oldfiles.Delete()

         }

       }
```

```
        }

}


# Call function

tableau_nightly_maintenance
```

<-- Maintenance Script end -->

# Install Tableau Desktop on User Workstations

For users who will be creating workbooks using the Tableau Desktop tool, you must install the Tableau Desktop software, as well as the necessary SQL Server drivers. The Tableau Desktop software installation files were downloaded when you downloaded the server installation software.

> **Attention:** See Download Tableau Software and Post Installation Configuration for the appropriate SQL Server drivers to install.

# Troubleshoot Tableau Server

Errors received when publishing the workbooks to Tableau Server may not provide sufficient information to identify the problem. For those issues, you need to obtain the Tableau Server logs. See the following Tableau knowledgebase article for the instructions:

https://onlinehelp.tableau.com/current/server/en-us/logs_archive.htm

The solutions to known problems follow.

| Problem | Solution |
|---|---|
| When attempting to publish workbooks, you may receive an error indicating the following: *** This data connection is not licensed for use with Deltek Vantagepoint Intelligence. During the workbook publishing process, a SQL Query is executed to ensure that you are attempting to use Tableau Server against a valid Deltek data source and that query is failing. You receive this error because your Tableau Server is only licensed to connect to your Deltek Vantagepoint database. | Ensure that the Tableau Server Run As account has rights to the Vantagepoint data sources and that the necessary SQL Server and Analysis Services drivers are installed on the Tableau Server or Desktop exhibiting the problem. If the error persists, restart Tableau server. |
| When attempting publish workbooks, you may see the following error in the Vantagepoint Intelligence Error Log: Error publishing workbook <workbook name>: Publish: <workbook name> failed to establish a connection to your datasource. | This problem is most likely a result of an invalid TLS configuration on the Tableau server which must match the TLS configuration of the Vantagepoint servers. Refer to Software Requirements in this guide for the required TLS configuration. |

# 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 (*Vantagepoint* DB Tier) | Server 2 (*Vantagepoint* DW Tier) | Server 3 (*Vantagepoint* 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 (*Vantagepoint* DB Tier) | Server 2 (*Vantagepoint* DW Tier) | Server 3 (*Vantagepoint* AS Tier) | Notes |
|---|---|---|---|---|
| | | Vantagepoint Agent | | |
| **Required Services** | SQL Server | SQL Server<br><br>SQL Server Agent<br><br>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:**

1. If you have any existing Vision Analysis Cubes deployments on your Vantagepoint database server, run the UninstallCube switch to remove them.

2. 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.

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