

RESOLVER

PERSPECTIVE INSTALLATION GUIDE

Version 5.4.1.3

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Perspective by Resolver Inc.™

Version 5.4.1.3

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SYSTEM REQUIREMENTS Version 5.4.1.3

The following requirements are for Perspective operating in a traditional LAN/WAN environment with the Web server component running on a separate Microsoft® IIS box. These specs are for planning purposes only and apply to Perspective™ V.5.4.1.3, Dispatch, and Connect. Please contact your Resolver representative for a specific assessment of your needs.

NOTE: Meeting the **Minimum** system requirements means you can run the application successfully, but it may not provide the best performance. Meeting the **Recommended** requirements will offer a significantly better experience.

	MINIMUM	RECOMMENDED
CLIENT MACHINE		
Processor Speed	2 GHz dual-core	2.5 GHz dual-core
Memory	2 GB	4 GB
Operating System	Windows® 7 SP 1, Windows® 8.1, Windows® 10	
.NET Framework	Version 4.5.2	
Web Browser – Launch Perspective	Internet Explorer® 11, Edge	
Web Browser – Web Portal	Internet Explorer® 11, Edge, Google Chrome®, Safari® iOS 9+, Android® Browser 4.2+	
Web Browser – Connect	Google Chrome®	
Third Party Application	Adobe Reader® 9.4.0+, Sun Java® Runtime Environment 7 U71, 8 U25 ¹	
Mobile iOS App	iOS 9, iOS 10	
Officer Mobile	iOS 9, iOS 10 or newer or Android 4.4, Android 5.1, Android 6.0 or newer.	
WEB SERVER MACHINE² (ON PREMISE ONLY)		
Available Disk Space ³	1 GB	2 GB
Processor Speed	2 GHz dual-core	2.5 GHz quad-core
Memory	8 GB	16 GB
Operating System	Windows Server® 2012, Windows Server® 2012 R2 ⁴ , Windows Server® 2016, IIS with WebSockets enabled ⁵ and Secure-Channel configured (HTTPS/SSL)	
.NET Framework	Version 4.5 with HTTP and non-HTTP activation, .NET Core 1.0.4 or 1.1.1 (Windows Hosting) ⁴	
C++ Runtime Libraries	C++ 2010 SP1 Runtime Libraries (x64) 10.40219	
Message Queue ⁴	RabbitMQ Server 3.6.9+	
Inbound Ports ⁶	443	
Outbound Ports ⁶	443, 2195, 2196, 5223, 5228, 5672	

DATABASE SERVER MACHINE ² (ON PREMISE ONLY)		
Available Disk Space	2 GB	20+ GB
Processor Speed	2 GHz dual-core	64-bit server dual-core or multi-processors
Memory	2 GB	4+ GB
Database Server ⁷	SQL Server® 2012 SP3, SQL Server® 2014 SP2, SQL Server® 2016 SP1	
Reporting Services	SQL Server® 2012 Reporting Services, SQL Server® 2014 Reporting Services, SQL Server® 2016 Reporting Services	

1. This requirement only applies if you're using Visual Analysis.
2. These requirements apply to systems with up to 25 users. For systems with 25+ users, contact your Resolver account manager for more information.
3. Depending on the size of the Perspective database, more disk space may be needed for Workflow.
4. This requirement only applies if you're using Connect.
5. This requirement only applies if you're using Dispatch.
6. For more information on these requirements, see the [Inbound & Outbound Ports](#) section of this guide.
7. Only SQL Server Enterprise Edition is supported for indexing on audit tables.

Notes:

- Net.TCP binding on port 808 is required only if using DispatchLog.
- For the best Dispatch experience, it's recommended that dispatchers run the application on two monitors with a resolution of 1920x1080.
- Time synchronization is required for Dispatch visual alerts. NTP is strongly recommended for Hosted customers.
- For the best performance, do not run the Indexer on the same server where the database is hosted.

Deployment Note: The Perspective client is deployed as a ClickOnce application, launched from IE. It has a zero-client footprint and doesn't require administrative rights to launch.

Network Note: If single sign-on authentication or add from Active Directory is used, Active Directory Services must be enabled on the Perspective Web Server.

Internet Note: Internet connectivity on the client machine is required for full functionality.

Inbound & Outbound Ports

The following ports may be required, depending on the additional components you have installed or will be installing.

Inbound

Port 443 is required for inbound connections to Integration Services.

Outbound

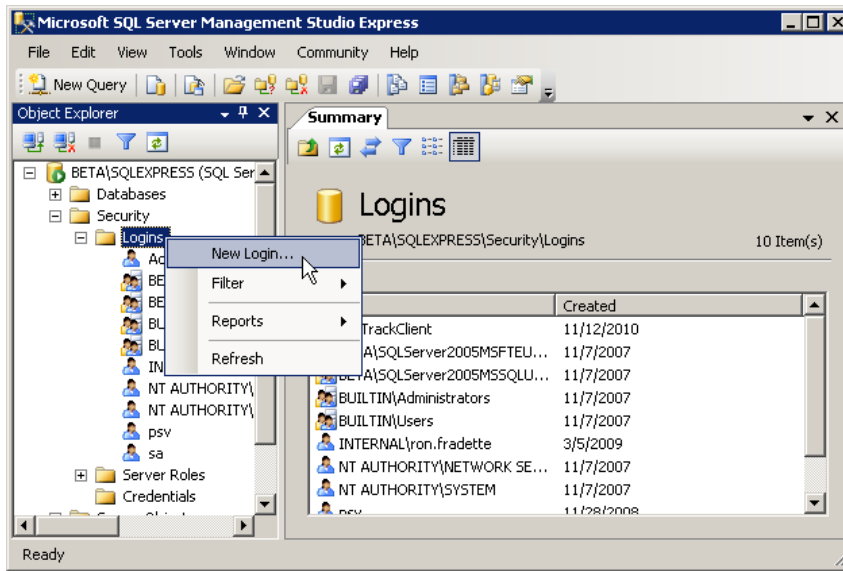
- **Perspective/Dispatch:**
 - `dev.virtualearth.net:443` for Bing Maps.
 - `dc.services.visualstudio.com:443` and `dc.applicationinsights.microsoft.com:443`. These ports are required only if Application Insights event logging is through Microsoft Azure.
- **Connect:** `<RabbitMQ hostname>:5672`. This port is required only if you're running a Connect integration with Integration Services 5.4 and up and a firewall exists between Integration Services and the configured RabbitMQ server.
- **Officer Mobile:** `dc.services.visualstudio.com:443` and `dc.applicationinsights.microsoft.com:443`. These ports are required only if Integration Services has been configured to send logs and telemetry to Application insights.
 - **Officer Mobile (iOS):** All IP addresses on the entire 17.0.0.0/8 address block require 2195, 2196, and 5223 for Apple Push Notification Services.
 - **Officer Mobile (Android):** `android.googleapis.com:443` and `mtalk.google.com:5228` for Google Cloud Messaging.
- **Other Integration Services clustered instances:** `<Other IS instance hostname>: 443`. This port is required only if service clustering is enabled and a firewall exists between instances.

Standard Install

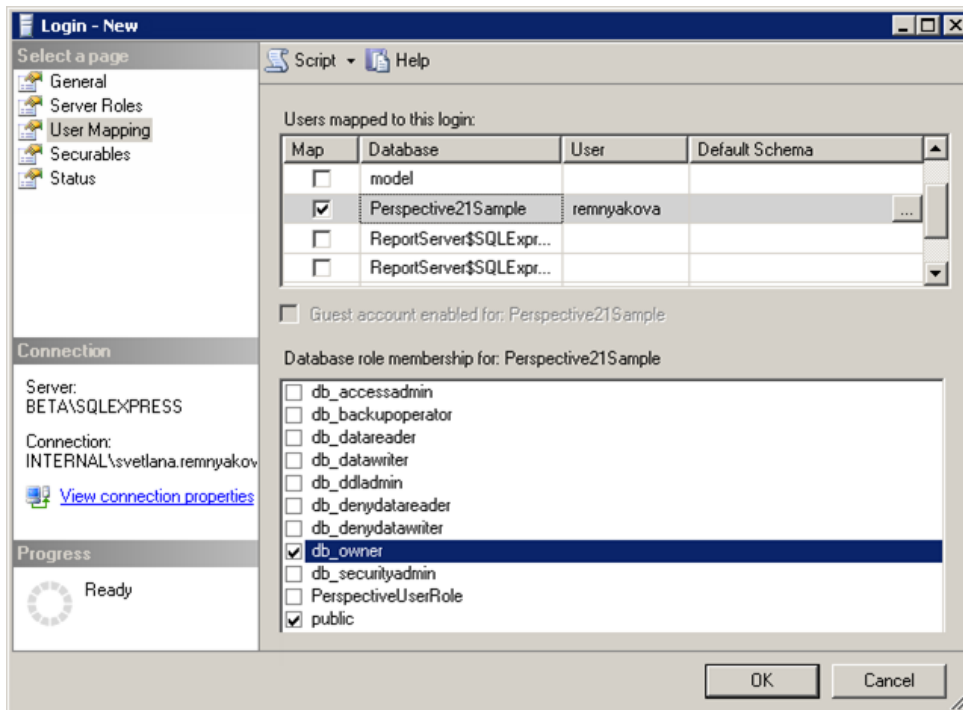
SQL Database Server

1. Ensure Microsoft SQL Server 2012 SP3 or better has been installed.
2. Install the Perspective database:
 - a. Launch Microsoft SQL Server Management Studio.
 - b. Right-click databases and select **Restore Database**.
 - c. Under **From Device**, click the **Browse (...)** button and browse to the appropriate database: default, sample, or system.

*Note: Standard backups are found in **Perspective Install > Database Setup > New**. If you're unsure which database to use, contact your Perspective Administrator.*
 - d. Click **OK**.
 - e. Check the **Restore** option.
 - f. Enter a database name in **To Database**, and then click **OK**. The database should now appear in the database list.
3. Create a new SQL user that will be used by Perspective to connect to the SQL Server:
 - a. Launch Microsoft SQL Server Management Studio. In the menu on your left, expand the **Security** node, right-click **Logins**, and select **New Login**.



- b. In the **Login – New** form, under the **General** page, type in the **Login Name** and modify the rest of the options according to your preference.
- c. Open **User Mapping**. Ensure the account has **db_owner** role membership rights, then click **OK**.

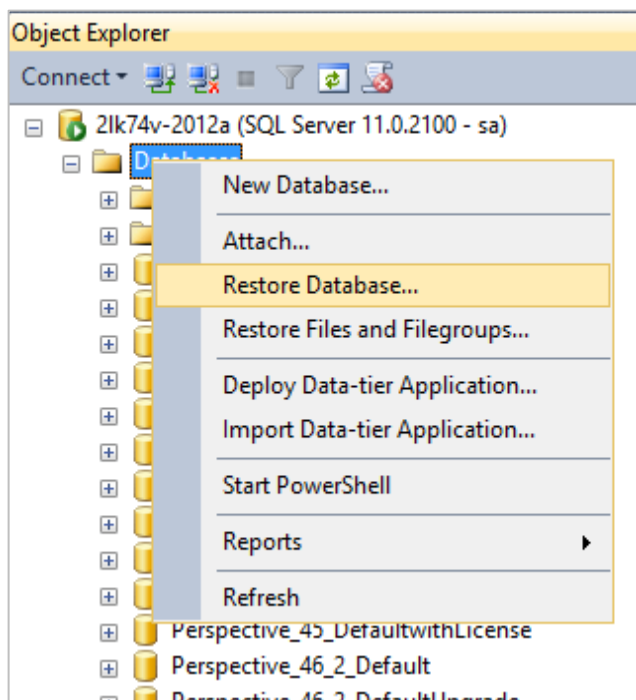


Database Restore (Dispatch Scheduling Service and Service Clustering)

Note: This section applies to users installing an edition of Perspective with the Dispatch application. If you're not installing an edition of Perspective with Dispatch, skip this section.

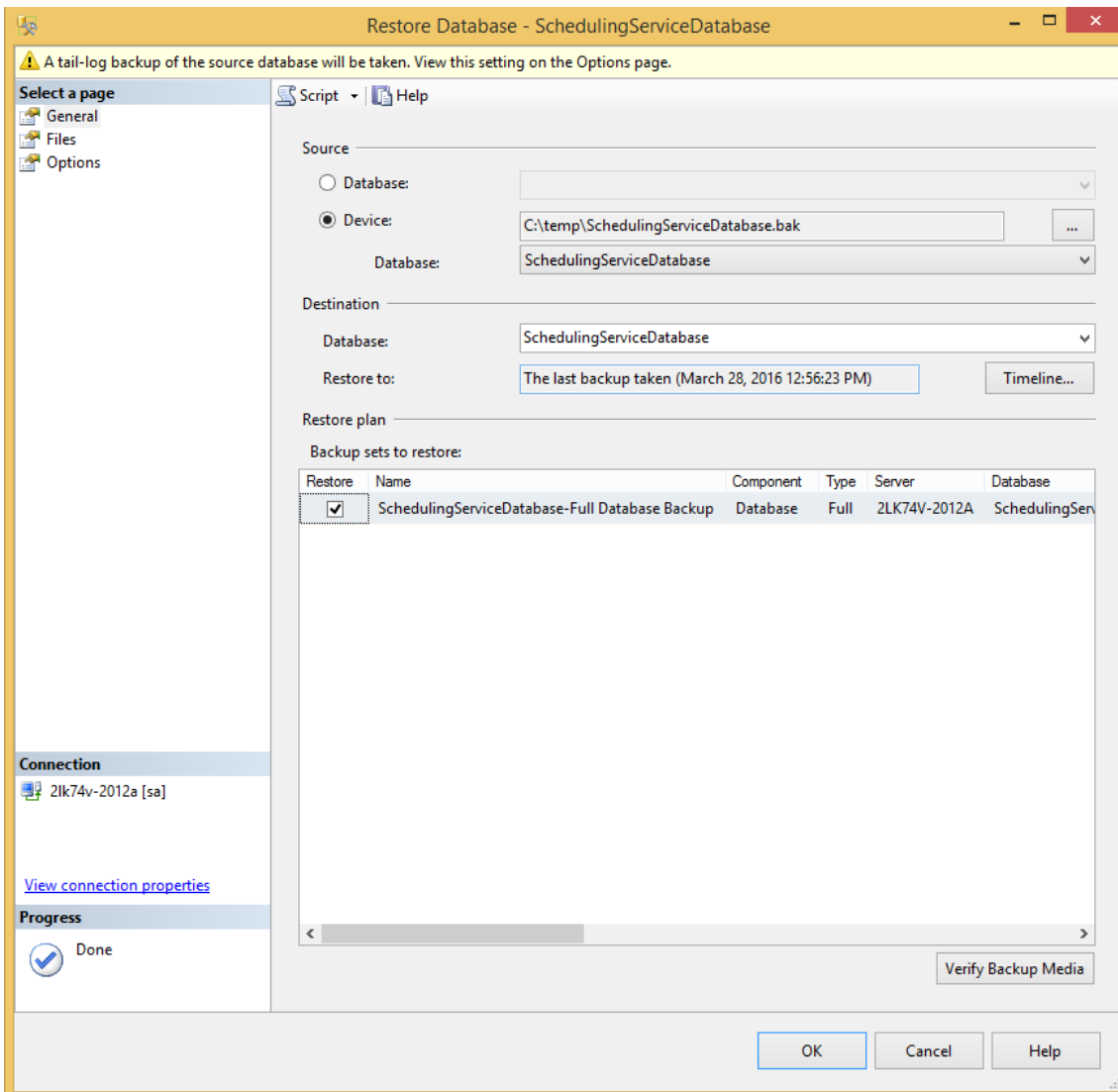
Follow these steps below to restore both the **Dispatch Scheduling Service** database and the **Service Clustering** database.

1. Open **SQL Management Studio**.
2. Right-click **Object Explorer** and click **Restore Database**.

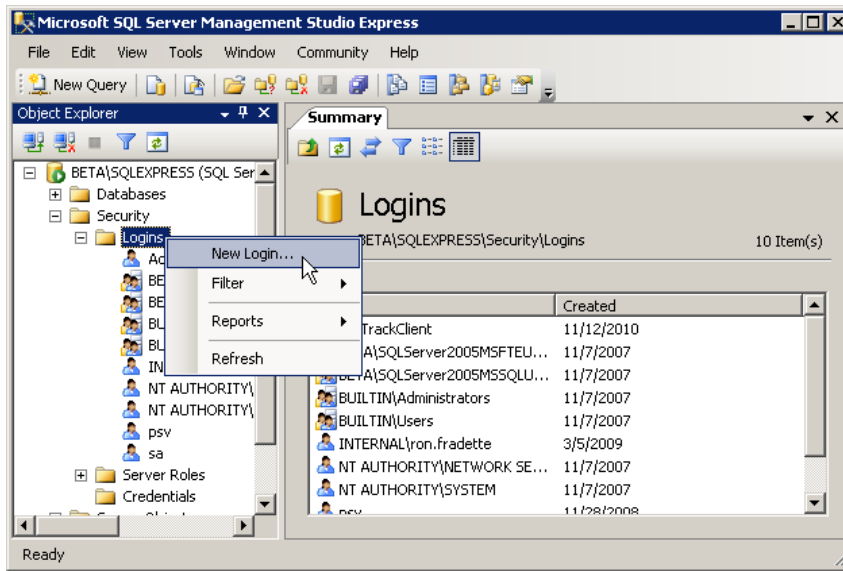


3. Navigate to the location of **Dispatching Schedule Service** database backup file.

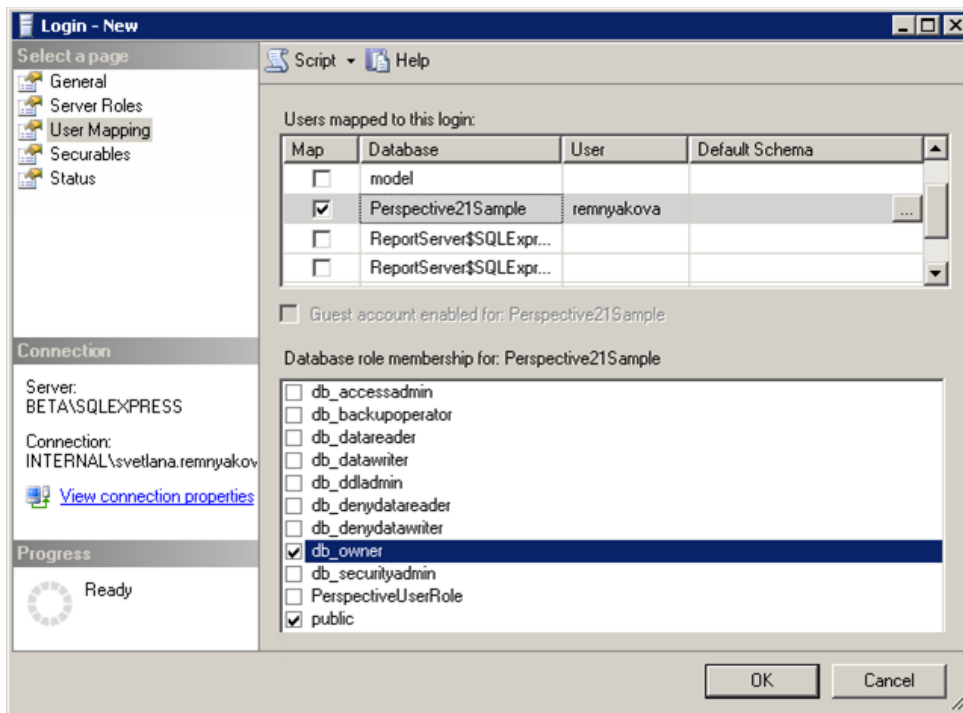
Note: Standard backups are found in **Perspective Install > Database Setup > New**. If you're unsure which database to use, contact your Perspective Administrator.



4. Click **OK** to restore
5. Create a new SQL user that will be used by Perspective to connect to the SQL Server:
 - a. Launch Microsoft SQL Server Management Studio. In the menu on your left, expand the **Security** node, right-click **Logins**, and select **New Login**.

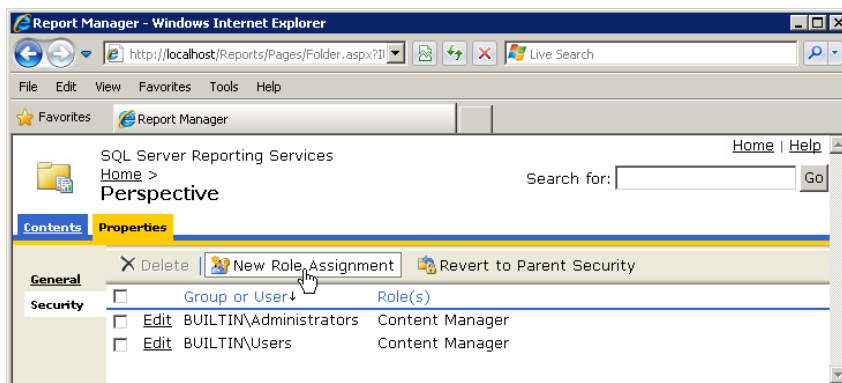


- b. In the **Login – New** form, under the **General** page, type in the **Login Name** and modify the rest of the options according to your preference.
- c. Open **User Mapping**. For both the **Dispatch Scheduling Service** and **Service Clustering** databases, ensure the account has either **db_owner** OR **db_datareader** and **db_datawriter** role membership rights, then click **OK**.



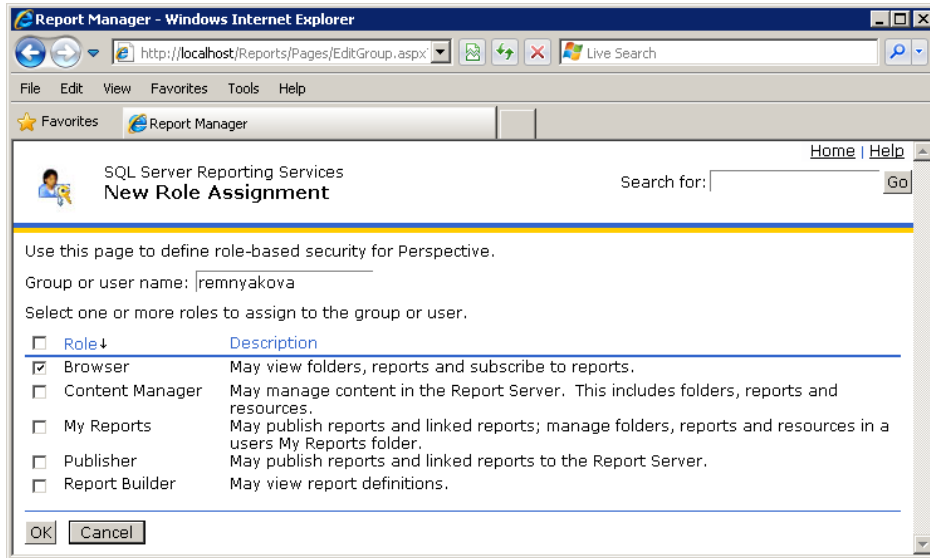
SQL Reporting Services

1. Ensure that SQL Server Reporting Services is installed.
2. From the Perspective install directory, copy the **Reports Setup** folder and all subfolders to a temporary directory on the Reporting Services computer.
3. Edit the **PublishServerReports.bat** file in the temporary directory. Before making any changes, save a backup copy of the original **PublishServerReports.bat** file.
 - Edit **databaseServerName** to <Name_of_Database_Server>.
 - Edit **databaseName** to <Name_of_Database>.
 - Edit **databaseUserId** to <sql_User_Account>.
 - Edit **databasePassword** to <sqlUser_Password>.
4. Save changes and run the **PublishServerReports.bat** file to publish reports to the Report Manager. If the file fails to run, see [Troubleshooting Tips](#).
5. Browse to your Reporting Services Web site (e.g. <https://localhost/Reports/>).
 - a. On the Contents tab, click the **Perspective** folder.
 - b. Click **Properties, Security** and **New Role Assignment**, then **Edit Item Security**.



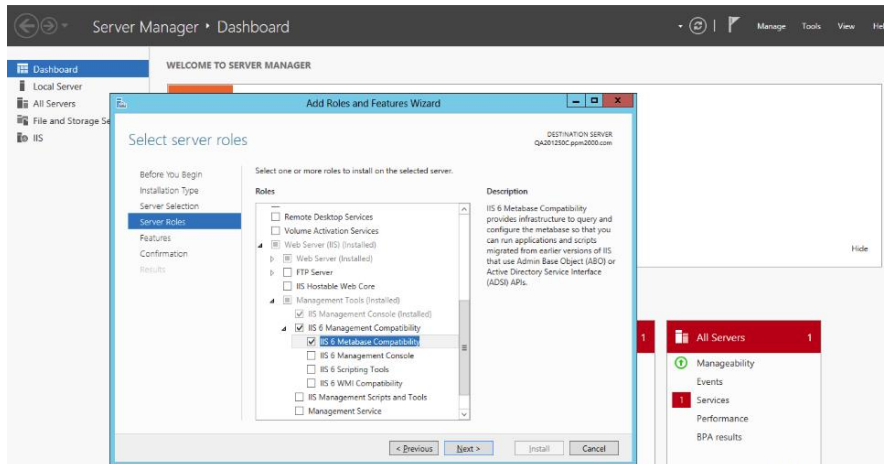
- c. Enter a Windows Service Account for the Perspective application to use when connecting to Reporting Services. Create a new local user, if you do not have one already. Ensure that the password is not set to expire.

- d. Select the **Browser** role and click **OK**.




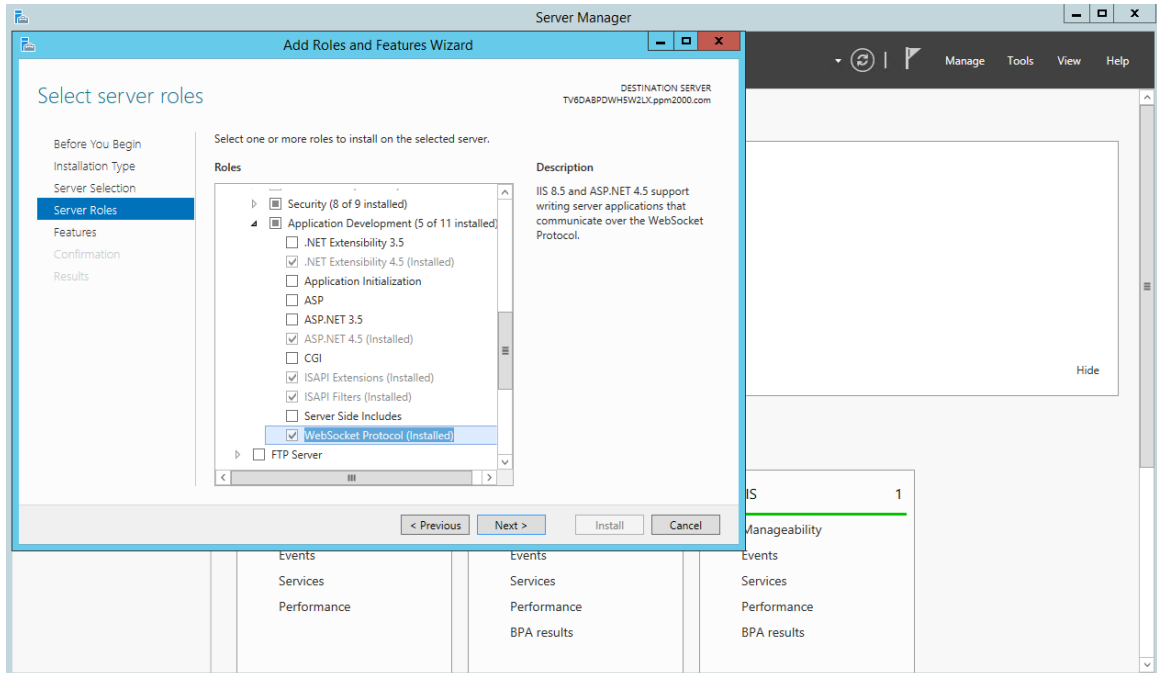
Perspective Services (Application Web Server)

Completing the following steps will install Perspective Services, Integration Services, Real Time Services, and Web Portal.

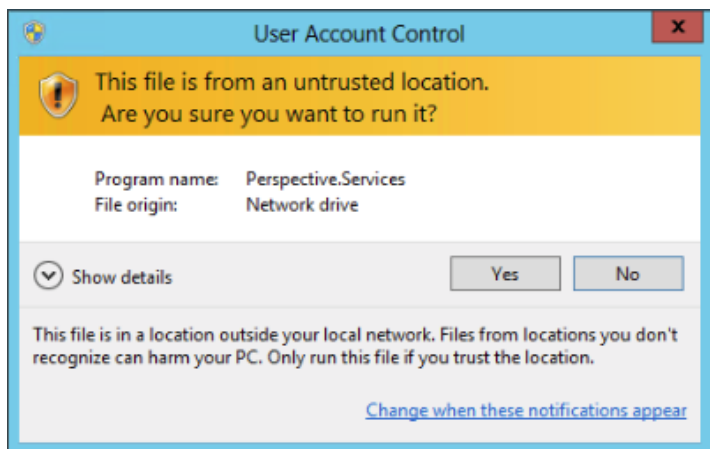


Enable IIS 6 Metabase Compatibility (image is taken from Windows Server 2012).

 Ensure **Internet Information Services (IIS)** is installed and that IIS has **WCF Activation** turned on and, if installing an edition of Perspective with Dispatch, ensure the **WebSocket Protocol** is installed (image is taken from Windows Server 2012).

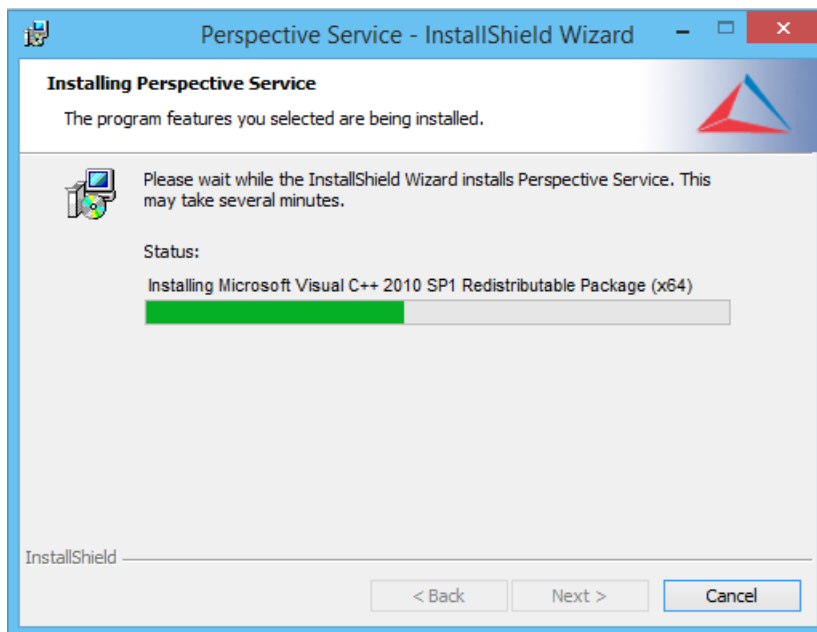


1. From the *Perspective Install > Web Service Setup* directory, run as an administrator **Perspective.Services.exe**. To complete the setup, follow the wizard's guidelines.
 - a. If the User Account Control screen pop-up window appears, click **Yes**.



- b. Wait for the Perspective Service Setup Wizard to start. Click **Next**.

- c. Read the License Agreement. If you accept the terms and conditions, select the appropriate radio button, and click **Next**.
- d. The default install path for the Complete install is C:/inetpub/wwwroot/Perspective5.4. Ensure Complete is selected, and click **Next**.
- e. In the following screen, click **Install** to confirm the installation. Wait while Perspective Services is being installed.
- f. If **Visual C++ 2010 SP1 Runtime Libraries (x64)** is not installed, you will be prompted to install the Runtime Libraries. If already installed, skip to step 2i.



- g. Accept the Terms and Agreements, and click **Install**.
- h. When the installation is complete, click **Finish**.
- i. Perspective Services installation will continue.
- j. Click **Finish** once the installation is complete.

Only check the **Show the Windows Installer log** box if you want to see where the files have been installed.

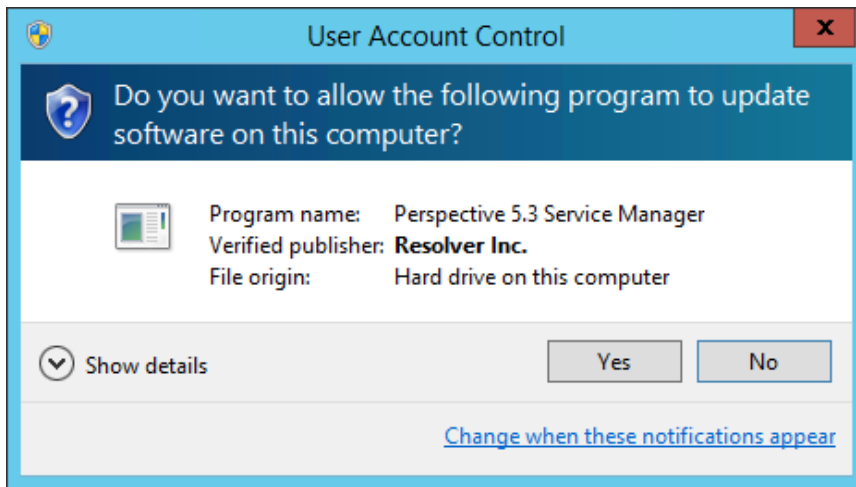
Set Up Secure Sockets Layer (SSL) on Internet Information Services (IIS)

To set up SSL on IIS, follow the instructions on the [Microsoft IIS](#) website.

Configure Connections Using Service Manager

1. From the *Perspective Install > Web Service Setup* directory, run **Perspective.ServiceManager.exe** as an administrator.
 - a. If the User Account Control screen pop-up window appears, click **Yes**.
2. The installation wizard appears. Click **Next** to continue.
 - a. Read the License Agreement. If you accept the terms and conditions, select the appropriate radio button and click **Next**.
 - b. You can change the installation directory, or click **Next** for default file path
 - c. In the following screen, click **Install** to confirm the installation. Wait while Perspective Service Manager is being installed.
 - d. Click **Finish** once the installation is complete.
 - Only check the **Show the Windows Installer log** box if you want to see where the files have been installed.
3. From the Start menu, or desktop, launch **Perspective 5.4 Service Manager** as an Administrator.

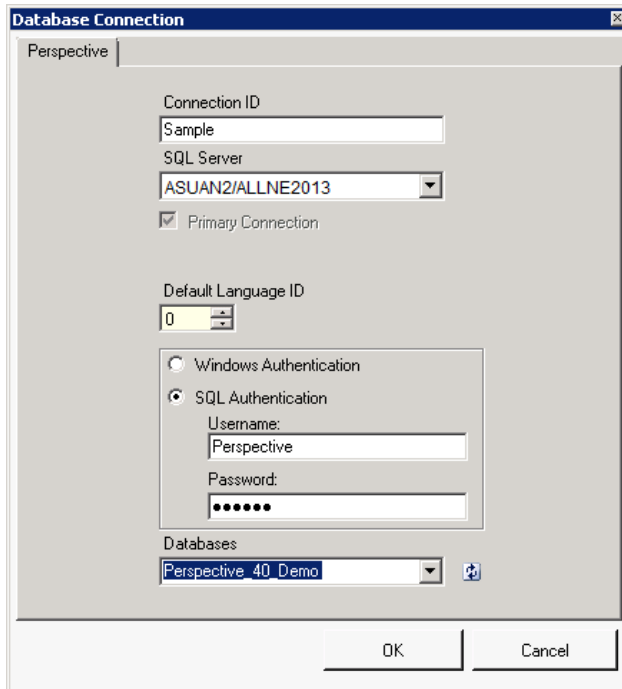
*Note: This process may trigger Windows' UAC (User Access Control) security feature. If prompted, click **Yes**.*



If you changed the installation path, you may be prompted to select a Perspective configuration file. Navigate to the installed location of Perspective Services, select **Perspective_[Your_Business_ID].config** (default location: **C:\inetpub\wwwroot\Perspective5.4\PerspectiveServices**) and open the configuration file.

*Note: If you're using **Perspective On Premise** and your organization's business ID is Default, the configuration file will be saved as **Perspective_Default.config**.*

You'll be prompted for database information.



4. Enter a new name for **Connection ID**.

Note: The Connection ID cannot contain the word "Default".

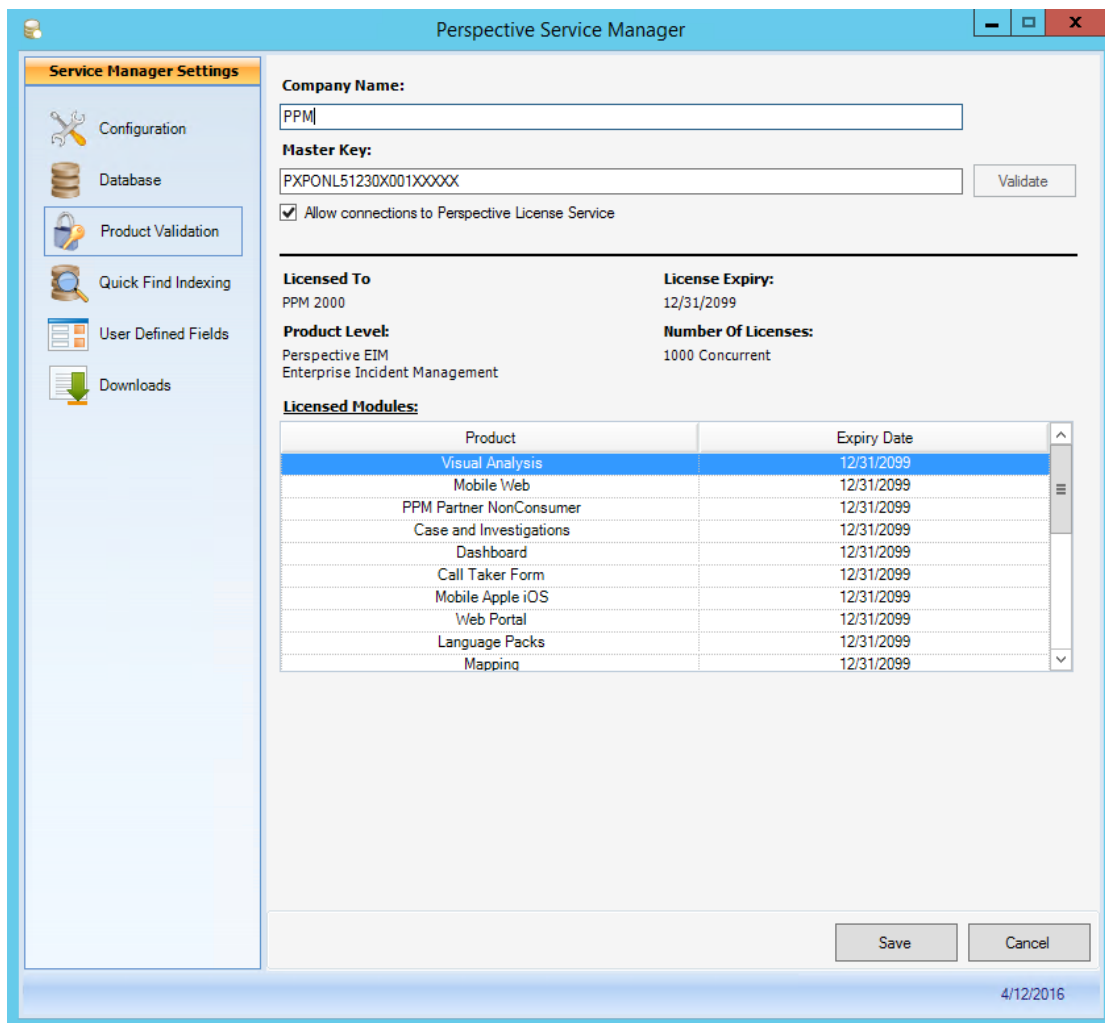
5. In the **SQL Server** lookup list, select your SQL Server or type the name of your server in the text box.
6. Leave **Default Language ID** set to **0**, unless instructed otherwise by Resolver.
7. Ensure **SQL Authentication** is selected, and enter the **SQL Username** and **Password** created when installing the database.
8. Select your Perspective database from the **Databases** lookup list.

Note: If you receive an "Unable to connect to the named server" message, you have entered either the wrong SQL server name or credentials.

9. Click **OK** to save and add the primary connection.
10. In the top field, enter your **Company Name**, as listed on the email provided to you with your license keys.
11. Enter the **Master Key** that applies to the Company Name entered. Note, the Master Key is case-sensitive.
12. Click the **Validate** button. The fields below will indicate the number of active licenses, **License Expiry Date**, **Product Level** and specifications of individual **Licensed Modules** (i.e., **Product**, **Number of Users** and **Expiry Date**).

*Note: The **Allow connections to Perspective License Service** box is checked by default.*

*Unchecking this box means a license file must be imported when you click the **Validate** button. If you don't have a license file, contact Technical Support at 1-877-776-2995.*



13. Open the Database component from the menu on the left and double-click your database name, or click the **Edit** button.
14. Open the **Report Service** tab and type the report server URL in the **Report Server URL** box.
15. Enter the name of your **Reports Folder**.
16. Proceed to the Report Service User section below. Enter the **Domain**, **Username** and **Password** that were granted browser rights when setting up the server-side reports.
17. Click the **Test** button. You should receive a prompt telling you the URL is valid. If not, confirm your configuration is correct and try again. Please refer to troubleshooting section for SQL reports if you receive an error and message.
18. Click **OK**.

Database Connection

Perspective Analysis Expert Connection Services Authentication Mode

Report Service Host

Report Server URL
http://myserver/reportserver Test...

Reports Folder
Perspective

Domain Username
User_Domain_Name User_Login_Name

Password
.....

Device Manager

Device Manager URL
Validate URL

OK Cancel

19. Select the **Configuration** component from the Perspective Service Manager menu.
20. To encrypt the Perspective_Default.config file, check the **Encrypt Configuration?** box.
21. Open the **Client-Side Configuration** tab.
22. Enter the **Download URL for Client-Side Reports**, if needed, for the client reports configuration files to update automatically (i.e., <https://<servername>/perspectiveservices/client>).

Configuration Client-Side Configuration Notification Attachments Services AE Tools

Client Reports Configuration

Download URL for Client-Side Reports:
http://localhost/perspectiveservices/client/

Location of updated client-side reports:
Browse

Reports Exists On Server:

Client-Side Reports Versi...
4.0.1126

Update Reports To Server

Save Cancel

23. Click **Save**.

*Note: If you do not click **Save**, you will be prompted to save all changes that have been made.*

24. Close the Service Manager by clicking the **Cancel** button, or clicking the **X** button on the caption bar.
25. Restart IIS.

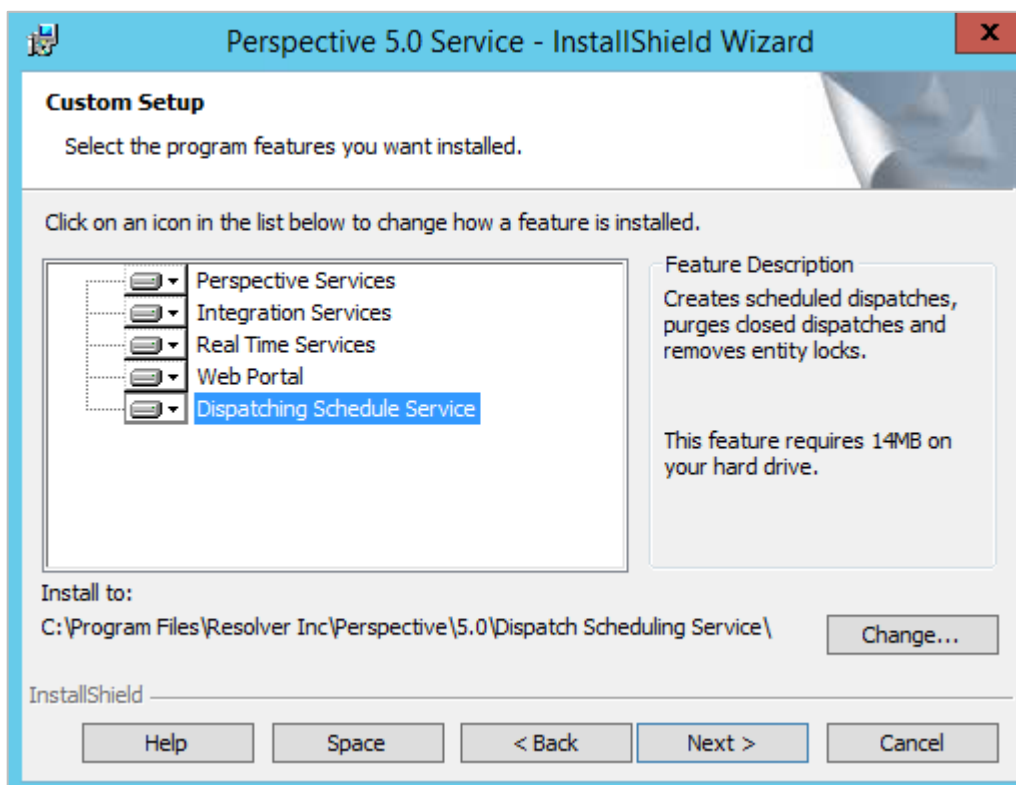
Advanced Configurations Warning

Additional options in the Service Manager are not covered in this step-by-step Standard Install walkthrough. For the list of supported advanced setup configuration options, please refer to the [Advanced Configurations](#) section. It's recommended that all setups follow the standard setup procedures outlined in this section as an initial starting point. Advanced features can be configured as needed after the standard configuration has been verified to run correctly.

Scheduling Services

Note: This section applies to users installing an edition of Perspective with the Dispatch application. If you're not installing an edition of Perspective with Dispatch, skip this section.

1. Navigate to install location of the scheduling service. If you completed a default installation of Perspective Services, it's located at **C:\Program Files\Resolver Inc\Perspective\5.4\Dispatch Scheduling Service**. If you completed a custom installation, this location is the path that was specified in the InstallShield Wizard.



2. Open the **Connections.xml** file.
3. Enter the service folder information to show the Integration Services virtual directory (i.e. `<servername>/integrationservices`).

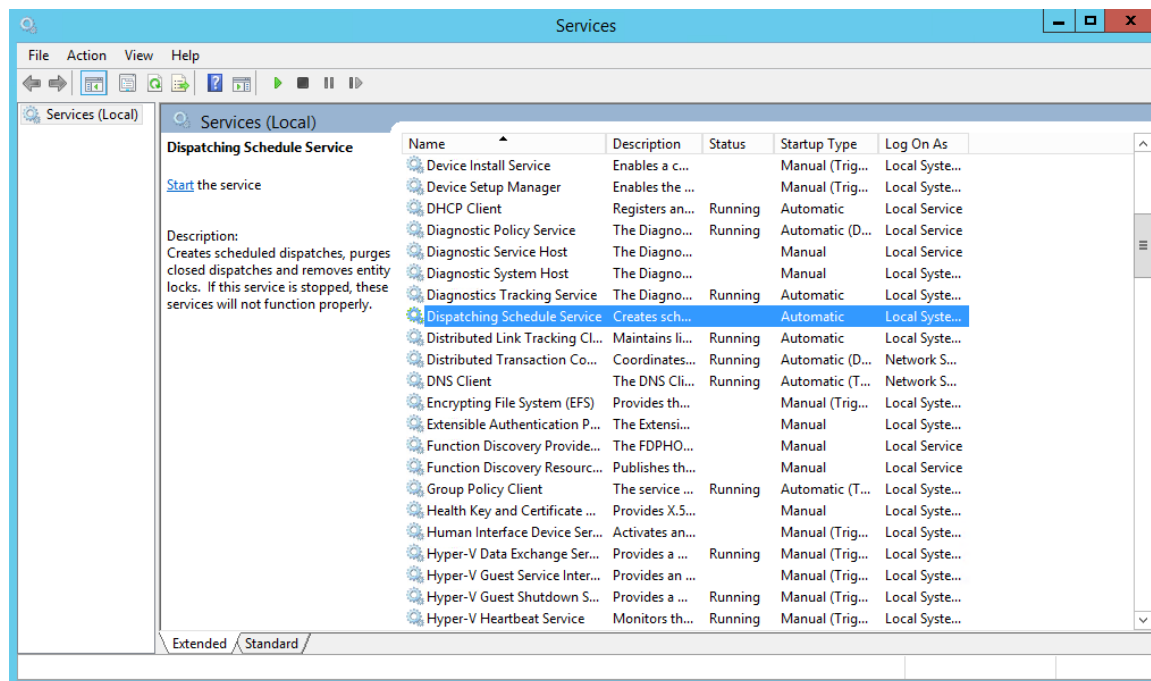
Note: If **Scheduling Services** and **Integration Services** are installed on the same machine, the Service Folder element(s) in the **Connections.xml** file must contain either an IPv4 address or the localhost alias.

4. Save your changes to the **Connections.xml** file, then close.

- Open the **SchedulingServices.exe.config** file.
- Under **appSettings**, enter the database connection string to point to the Scheduling Service database. For example:

```
<add key="DataBaseConnectionString" value="Data Source=<dbserver\dbinstance>;Initial Catalog=<dbname>;user id=<user>;password=<password>;Application Name=Integration Services" />
```

- Save your changes to the **SchedulingServices.exe.config** file then close.
- Open **Windows Services**.
- Click on **Dispatching Schedule Service**.



- Click the  icon or right-click **Dispatching Schedule Service** then click **Start**.

Configure Device Manager for Connect

Note: This section applies to users installing an edition of Perspective with the Dispatch application, along with Connect 2.0. If you're not installing an edition of Perspective with Dispatch and Connect, skip this section.

In order to view the Connect devices in Dispatch, the Device Manager URL in the **Perspective_default.config** file must be edited to show the Connect server. Note that Perspective should only use an instance of Connect as its Device Manager if the Connect instance is using Perspective's instance of Integration Services for authentication.

Note: To successfully configure the Device Manager, the **Perspective_default.config** file cannot be encrypted through Service Manager.

1. Using Notepad, open the **Perspective_default.config** file. By default, it can be found at C:\inetpub\wwwroot\Perspective5.4\PerspectiveServices.
2. Scroll down to the bottom of the file and locate the **<DeviceManagerURL>** tags.
3. Change the URL in the tags to point to the Connect server.

```
<DeviceManagerURL>https://<ConnectServerName>/api/</DeviceManagerURL>
</PerspectiveConfig>
```

Note: Only one Device Manager URL is permitted per config file.

4. If you're using the **Alarms** feature in Connect and Dispatch, enter the following tags below the **<DeviceManagerURL>** tag, entering the RabbitMQ server information within the tags as required (this information can be obtained from your RabbitMQ administrator):

```
<ConnectQueueConfiguration>
    <HostName>...</HostName>
    <VirtualHost>...</VirtualHost>
    <UserName>...</UserName>
    <Password>...</Password>
    <NetworkRecoveryIntervalInSeconds>...</NetworkRecoveryIntervalInSeconds>
</ConnectQueueConfiguration>
```

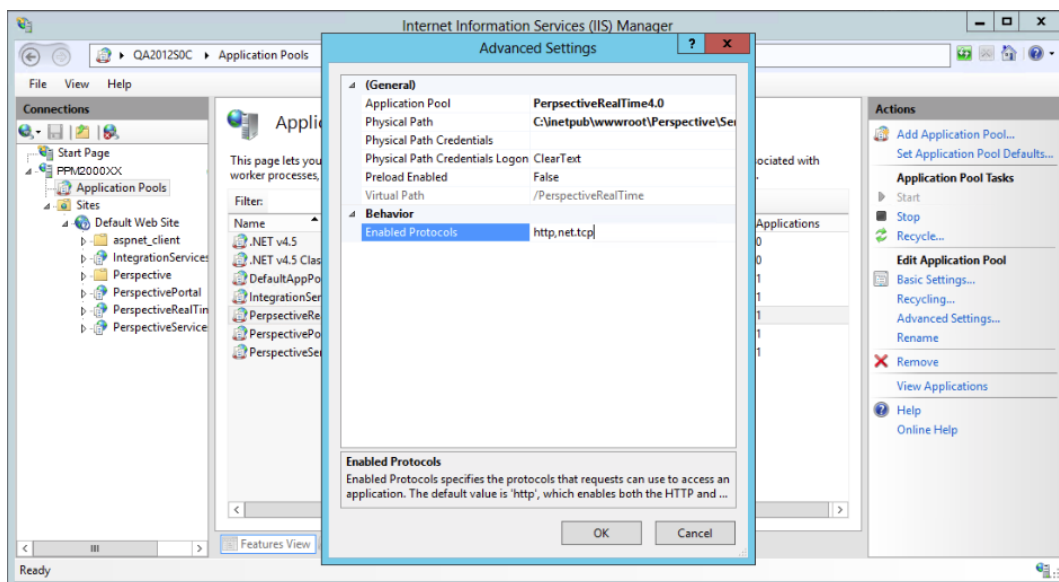
5. Click **File > Save** to save your changes, then close the file.

Real Time Service Configuration (DispatchLog)

If you're installing a version of Perspective that includes **DispatchLog**, additional configuration to Real Time Services is required.

1. Navigate to your **IIS Settings**.
2. Expand **Site** and expand **Default Web Site**.
3. Right-click **PerspectiveRealTime** then **Manage Application >Advanced Settings**.
4. In **Advanced Settings**, add **http,net.tcp** in **Enabled Protocols**. Click **OK**.

Note: Port 808 is used by default.



5. Go to the **inetpub/wwwroot/Perspective5.4/PerspectiveServices** directory and edit the **Perspective Default Config** file. To do this, find the Perspective Real Time URL, and replace the localhost with a fully qualified server name.

Note: Additional exceptions for Windows and network firewall may be required.

Client Machines

Accessing Perspective Desktop Client

1. Ensure Microsoft .NET 4.5.2 Framework is installed on the client machine.
2. Browse to the Perspective Services URL:
 - <https://<servername>/PerspectiveServices> <servername> refers to the Perspective Web server installed in the previous section.
- a. Click the **Perspective** icon.



- b. Click **Run**.
- c. If you're using the **MSI Package installer**, follow the procedures below.
 - i. Browse to the Perspective Services URL (e.g. <https://<servername>/PerspectiveServices/?opt=0>)
 - If you're using **?opt=1**, only the ClickOnce installer will be displayed.
 - If you're using **?opt=0** or if Java Script is disabled or the Web Service is not a trusted site, both the ClickOnce and MSI Package installer will be displayed.

- ii. Download the **MSI Package** and follow the on-screen instructions. If you experience any problems during the download of the MSI Package or the installation of the MSI client, call Technical Support at 1-877-776-2995 for assistance.

Note: Following the configuration of the Web Server, please ensure application initialization has taken place so that end users do not experience delays with initial page loading. After any IIS reset or configuration, navigate to <https://<servername>/IntegrationServices/service.svc> to begin the application initialization.

3. After Perspective downloads and installs, you might be prompted to enter a URL. The URL should be automatically populated. If so, move to the next step. If not, enter your Perspective Services URL as before: **<https://<servername>/PerspectiveServices>**. <servername> refers to the Perspective Web server installed during the installation of Perspective.

Now you should be able to test the default Perspective logon. From this point onward, users must navigate to the Perspective Services URL to launch the Perspective application.

Perspective Default Logon	
User Name:	Admin
Password:	Security

To create a shortcut to the application on the client machine's desktop, proceed as follows:

1. Navigate to the **Perspective Services URL**.
2. Right-click the **Launch Perspective** button and select **Copy Shortcut**.
3. Right-click the client desktop and select **Paste Shortcut**.



Default Admin Master vs. Users with Administrator Rights

As of Perspective Version 3.3, there are differences between the default Admin Master account and a Perspective User with Administrator rights. Specifically, the Admin Master has select features available that other Users, even with Administrator rights, do not.

However, the default Admin Master **can only access the Administration and Dashboard panels of Perspective**. Other components are unavailable to the Admin Master; this account cannot be used for data entry.

Accessing Perspective Web Portal

Users can't access the Web Portal until an administrator has set up workgroups within Perspective that allow imports. Once the workgroups are set up, the Web Portal can be configured.

To configure your Web Portal:

1. Open an Internet browser (either Google Chrome or Internet Explorer 11 or greater).
2. Click **Portal** on the launch page or navigate to your Portal Services URL:
https://<servername>/PerspectivePortal. <servername> refers to the web server installed during the installation of Portal.
3. Administrators will be required to log in to set up the Web Portal. Refer to the *Perspective Web Portal User Guide* for additional information.

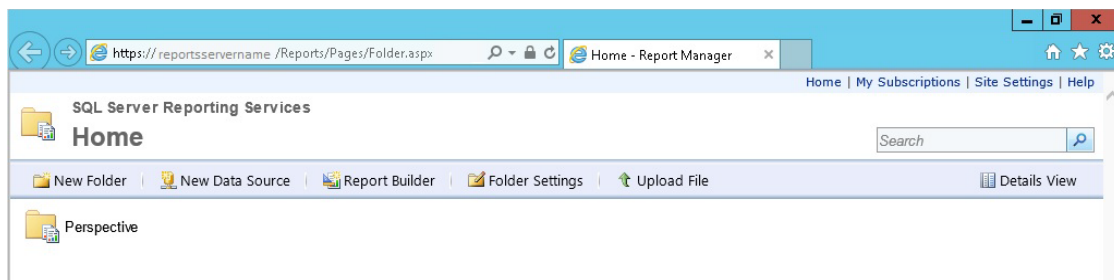
Testing Perspective Implementation

Once you have completed the steps outlined on the previous sections, please go through the following steps to ensure that all Perspective's components have been set up properly.

*Note: Following the configuration of the Web Server, please ensure application initialization has taken place so that end users do not experience delays with initial page loading. After any IIS reset or configuration, navigate to **https://<servername>/IntegrationServices/service.svc** to begin the application initialization.*

1. Go to the Perspective Services URL and confirm that the page loads properly:
https://<localhost>/perspectiveservices, where **<localhost>** is the appropriate local host address on your network.
2. Go to the Perspective Services page and confirm that the page loads properly:
https://<localhost>/perspectiveservices/service.asmx, where **<localhost>** is the appropriate local host address on your network.
3. Go to the Report Manager page and confirm that the page loads properly:
http://<reportservername>/reports, where **<reportservername>** is the appropriate address for the reports server on your network.

*Note: If your Report Manager page does not display correctly, run the **PublishServerReports.bat** file included in the **Perspective Install > Reports Setup** folder.*



4. Log on to the Perspective client—preferably not on the server itself—using your Perspective administrator user name and password.
5. Once you have logged on successfully, click on the **Reports** button in the Navigation pane (on the left-hand side of the screen) and confirm that all reports are listed. The easiest way to confirm that the client-side reports are working is to verify that there are reports listed under the **Detail Reports** heading, such as the Incident, Person and Vehicle Reports.
6. To also confirm you are connected to the correct database, run the **Workgroup List** report and verify the workgroups listed.

7. To confirm that the server-side reports are working, try running the **Test Report** under the **<Administrative Only>** node listed. If you receive an error message, see the [Troubleshooting Perspective & SQL Reporting Services](#) article on the Resolver Support site for more information.

Note: Both the Report version and database version should display as 5.4.

Advanced Configurations

Perspective offers your organization a number of advanced configuration options. Before attempting to implement any of the following options, we recommend that you complete the standard installation first, then contact Technical Support at 1-877-776-2995 or support@resolver.com for further instructions.

SSL on Your Web Service	To secure and encrypt data sent to and from the Web service to client machines.
Windows Authentication	To allow users to log on to Perspective and to connect to SQL service using their Windows authenticated account
IIS Compression	To compress information sent from Web services to the client. (Recommended for installs with remote users who are not connected directly to the network. If all users are internal, compressing data may take longer than sending uncompressed data over a high-speed network.)
Transparent Data Encryption	For encrypting data at rest (for use with Microsoft SQL Server Enterprise Edition only).
Setting up Sample/Training Database	Default setup supports one database only. If additional databases are required, these can be set up with assistance from Technical Support.
AE Mirroring	For sites with high volumes of data that require SQL intensive searches to be executed against a separate SQL server.
Custom Pagination	By default, the pagination feature is set to 100 records per page. This number can be modified (to any value from 20 to 1000 records per page) by manually editing the <code><PaginationPageSize>100</PaginationPageSize></code> tag in the Perspective_Default.config file.

<p>Custom Legal Notice and Privacy Statement</p>	<p>To customize Perspective's legal notice and/or privacy statement for your organization, navigate to the Legal folder in the Perspective Services Virtual Directory, open the LegalNotice.mht or PrivacyStatement.mht file in an HTML editor (such as Microsoft Word), apply your edits, and save the file as an MHTML document with the original file name.</p>
<p>Change Default Install Location</p>	<p>To change the default installation location, select Custom from the Setup Type screen (when installing Perspective Services). Click Next. Select a feature and click the Change button. Then, pick the new install location. Click Ok.</p>
<p>Change Caching Options of Portal</p>	<p>The caching duration is set by default to 20 minutes. However, this can be changed by accessing the web config file of Perspective Portal. The duration is in minutes, and can be between 1-1400 minutes.</p> <p><i>Note: Caching should always be enabled unless you are troubleshooting. Disable it by setting caching=false.</i></p>
<p>Directing to Fully Qualified Servers for Portal</p>	<p>Go to C:/inetpub/wwwroot/Perspective5.4/PerspectivePortal and edit the web config file. Find the external web address and update it to a fully qualified server.</p>
<p>Application Insights</p>	<p>Allows you to see logs from the application that can help with debugging issues. To use this feature, contact Resolver Support.</p>

Set Up Additional Features Using Service Manager

Perspective Service Manager is an external application available only on the Web server hosting Perspective services. It is used to manage configuration files, databases, licenses and keys, as well as to set up a number of important features in Perspective (i.e. email and mass notifications, attachments, Quick Find indexing, User Defined Fields, Custom Search integration, and Integration Services URL).

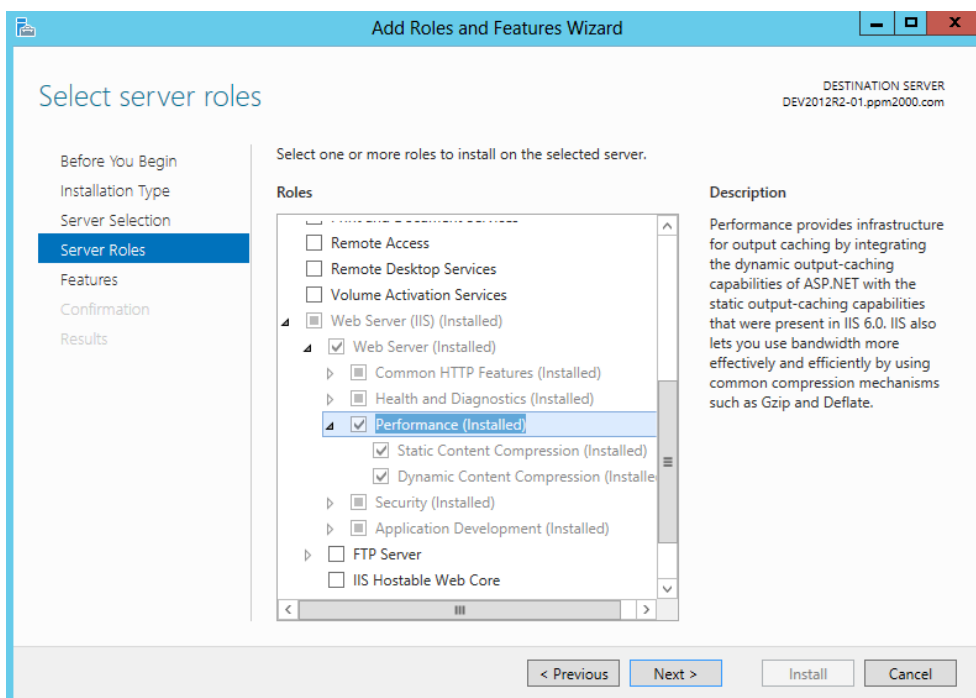
To access Perspective Service Manager, go to **C:\Program Files\Resolver Inc Inc\Perspective\5.4\ServiceManager > Perspective.ServerManager** or open it from the Startup menu.

Remember to complete each editing action in Perspective Service Manager by clicking **Save Changes**. To implement your settings in Perspective, restart **Internet Information Services (IIS)** (and the Perspective Web server). Note that restarting IIS will affect anyone currently logged on to Perspective. Ensure that all users have saved their work and exited the program prior to completing this step.

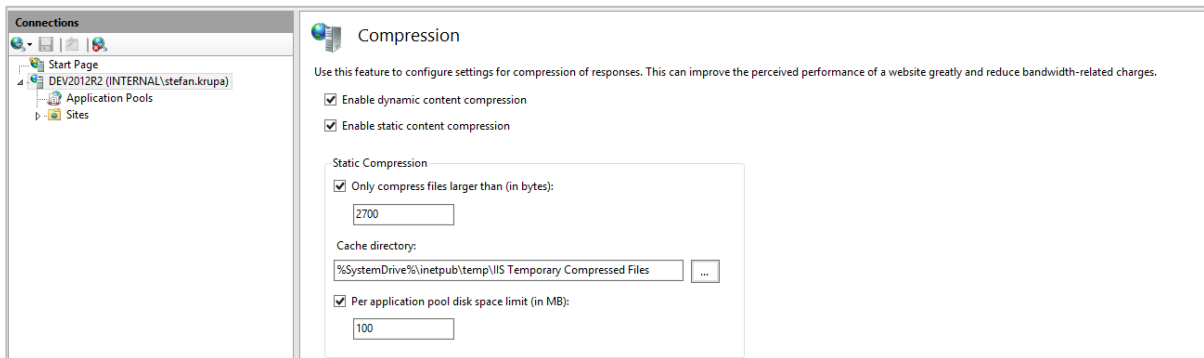
Configuring HTTP Compression for ClickOnce Packages

Configuration: Windows Server 2012 R2

1. Verify that **Static** and **Dynamic Content Compression** Roles are enabled (done through server manager).



2. In IIS Manager, click on your server.
3. Under IIS, click **Compression**.
4. Verify the **Enable dynamic content compression** and **Enable static content compression** checkboxes are selected.



5. In IIS Manager, click on your server.
6. Under IIS, click **MIME Types**. Here you can see all file extensions and their associated MIME Types. The basic MIME Types for ClickOnce deployment are:

.application -> application/x-ms-application

.manifest -> application/x-ms-manifest

.deploy -> application/octet-stream

7. For the above MIME Types to be compressed, you need to edit the **applicationhost.config** file which can be found in the **%windir%\system32\inetsrv\config** folder.
8. Open this file. Under the http compression tag and under **dynamic types** and **static types**, add:

```
<add mimeType="application/octet-stream" enabled="true" />
```

```
<add mimeType="application/x-ms-application" enabled="true" />
```

```
<add mimeType="application/x-ms-manifest" enabled="true" />
```

```
<httpCompression directory="%SystemDrive%\inetpub\temp\IIS Temporary Compressed Files">
  <scheme name="gzip" dll="%Windir%\system32\inetsrv\gzip.dll" />
  <staticTypes>
    <add mimeType="text/*" enabled="true" />
    <add mimeType="message/*" enabled="true" />
    <add mimeType="application/javascript" enabled="true" />
    <add mimeType="application/atom+xml" enabled="true" />
    <add mimeType="application/xaml+xml" enabled="true" />
    <add mimeType="application/octet-stream" enabled="true" />
    <add mimeType="application/x-ms-application" enabled="true" />
    <add mimeType="application/x-ms-manifest" enabled="true" />
    <add mimeType="*/*" enabled="false" />
  </staticTypes>
  <dynamicTypes>
    <add mimeType="text/*" enabled="true" />
    <add mimeType="message/*" enabled="true" />
    <add mimeType="application/x-javascript" enabled="true" />
    <add mimeType="application/javascript" enabled="true" />
    <add mimeType="application/octet-stream" enabled="true" />
    <add mimeType="application/x-ms-application" enabled="true" />
    <add mimeType="application/x-ms-manifest" enabled="true" />
    <add mimeType="*/*" enabled="false" />
  </dynamicTypes>
</httpCompression>
```

- Run Command prompt as an Administrator and execute this command. This command will cache every file instantly:

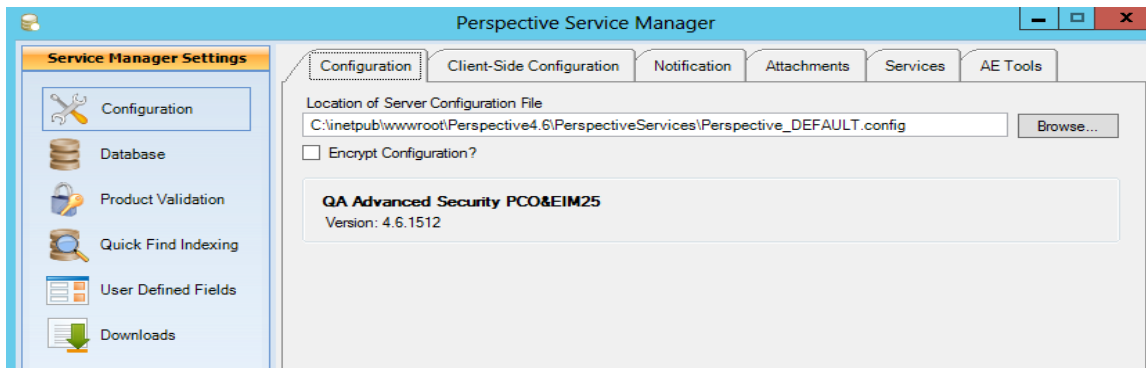
```
%windir%\system32\inetsrv\appcmd.exe set config -section:system.webServer/serverRuntime -
frequentHitThreshold:1
```

- Reset IIS.

Configuration

Select the **Configuration** component from the Perspective Service Manager menu and open the **Configuration** tab. Click **Browse** to navigate to the **Location of Server Configuration File**.

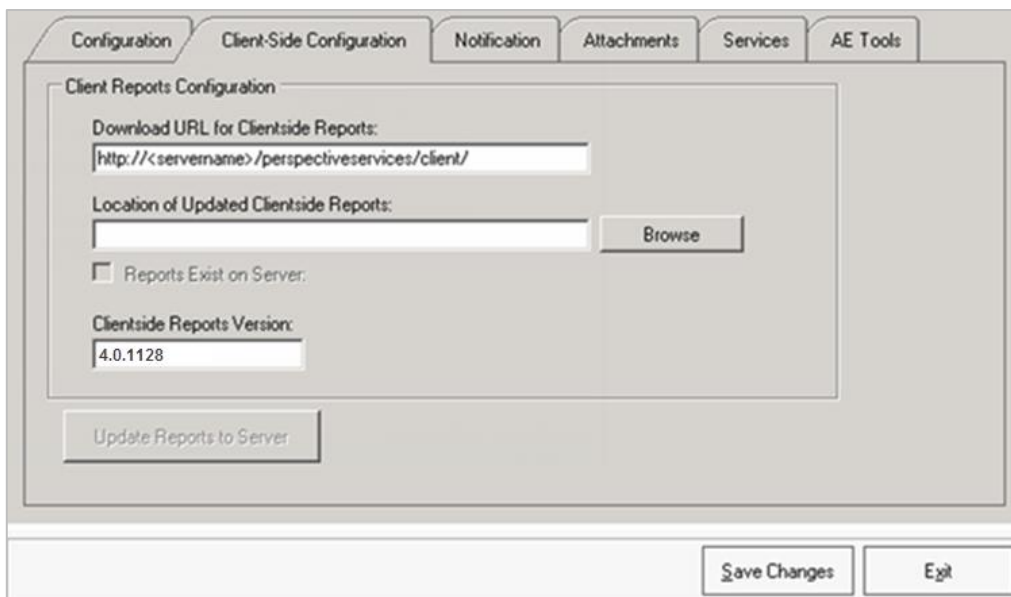
Note: This option would be used when Perspective Services has been installed in a different location than the default option.



Client-Side Configuration

1. Select the **Configuration** component from the Perspective Service Manager menu and open the **Client-Side Configuration** tab.
2. To update the configuration with a .zip file provided by the Technical Support, click **Browse** to navigate to the **Location of Updated Client-Side Reports**. The field below will indicate the **Version** of the client-side reports.
3. Click **Update Reports to Server** to complete the update.

Note: This option would be used if a newer version of client-side reports is available.



SAML 2.0 Authentication for SSO

The following section provides instructions on configuring Perspective Service Manager to implement SSO, however, prior to completing these steps, you must confirm your identity provider (IdP) supports **SAML 2.0 through service provider initiated SSO**. SSO is supported for use with the Enterprise edition of Perspective.

Your IdP will also need to provide you with instructions on adding and configuring new and existing Perspective users directly through their service as IdP configurations will vary.

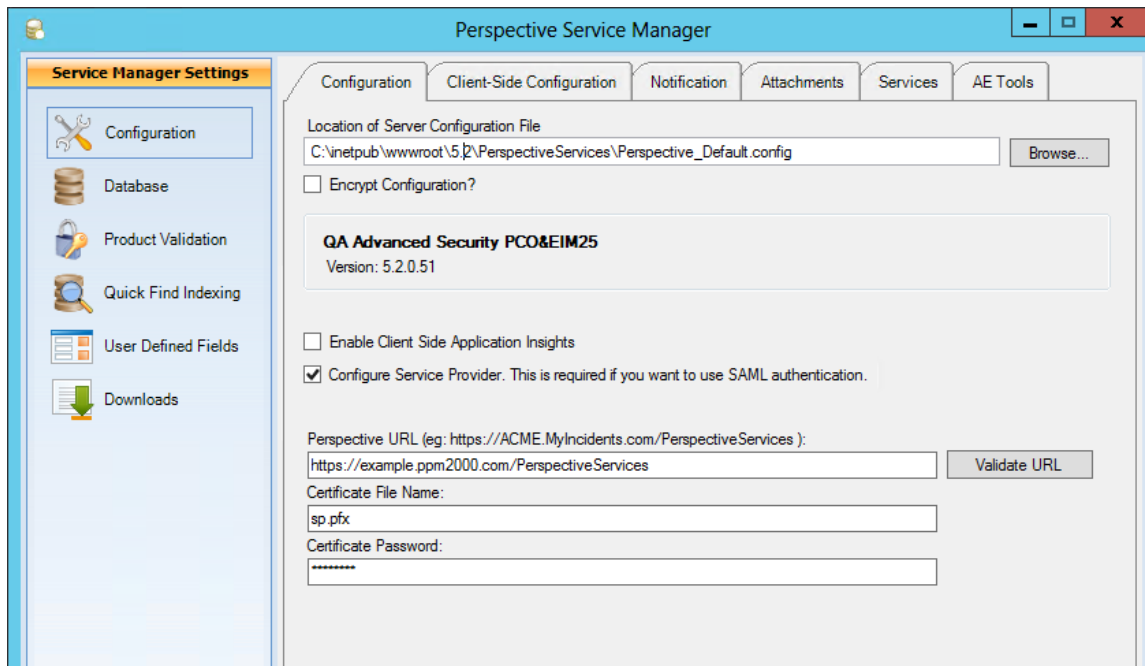
NOTE: If you're using AD FS to configure SAML, see the [Set Up SSO with AD FS](#) article on the Resolver Support site for instructions after following the steps below.

1. Open **Service Manager**.
2. Click **Configuration** in the pane to the left if it's not already open.
3. Select the **Configure Service Provider** checkbox.
4. Enter your Perspective Services URL in the **Perspective URL** field, then click **Validate**.

*Note: The URL you enter in this field must **exactly** match what has been entered into your IdP's configurations, including the case (upper-case or lower-case letters) and slash (/ or \) direction.*

5. Enter the server certificate file name in personal exchange format (.pfx) in the **Certificate File Name** field and enter a password in the **Certificate Password** field. For testing purposes, a sample .pfx file has been included in the installation package with a file name of **sp.pfx** and a password of **password**. This information is required so that the services (Perspective, Dispatch, Dashboard, etc.) can securely communicate with the identity provider.
6. Save a copy of the certificate file to ***PerspectiveInstallationPath*\PerspectiveServices\SAML\Certificates**. This file usually has a .PFX extension and will also need to export the private keys.

Note: If you chose the default certificate file, the file was saved at this location during installation.



After completing the above steps, you'll need to select how you will input the identity provider's details. See the [Identity Provider Configuration](#) section for information on uploading a metadata file or metadata URL or see [Manual Settings](#) for instructions on inputting the data manually.

Identity Provider Configuration

The settings below allow you to import your IdP's configurations directly into Service Manager via a metadata file or metadata URL, which is obtained from your IdP.

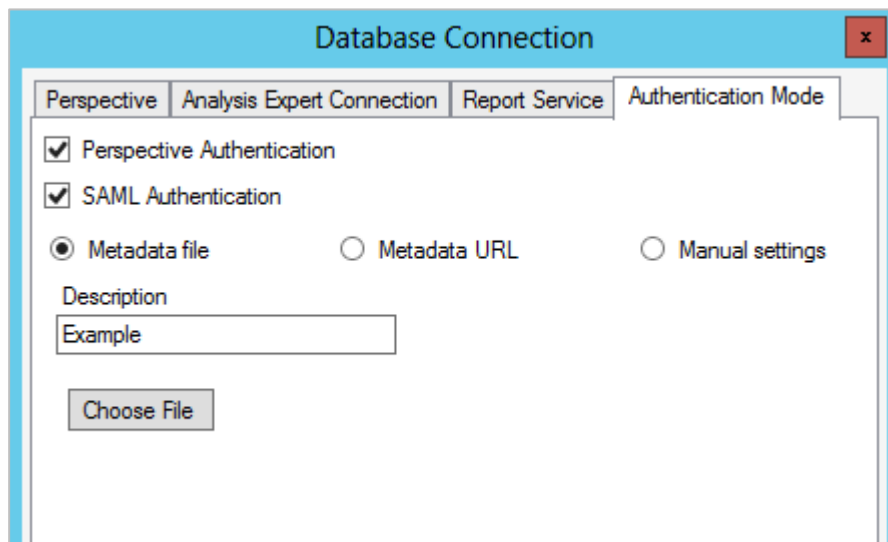
1. In Service Manager, click **Database** in the pane to the left.
2. Double-click a database to edit it.
3. Click the **Authentication Mode** tab.
4. Select the **SAML Authentication** checkbox.

Note: If this option is unavailable, the service provider information has not been properly configured in steps 3 and/or 4 in the section above.

5. Select how you want to input the identity provider information:

- **Metadata file:** This option will require that you obtain a metadata file from your IdP to import the SSO configurations into Service Manager. When downloading a metadata file from your IdP, the certificate is usually extracted and saved in your **My Documents** folder, but it must be moved to ***PerspectiveInstallationPath*\PerspectiveServices\SAML\Certificates** after it's been downloaded.

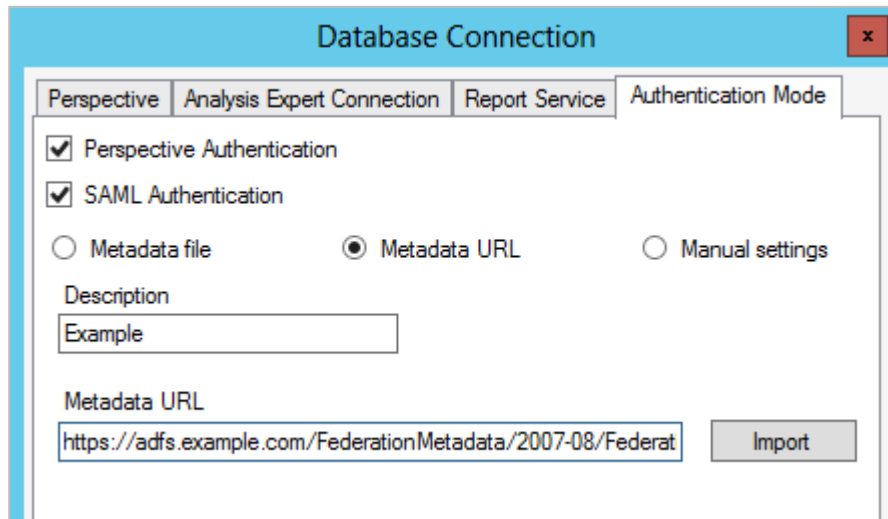
To use this option, after downloading the file, enter the name of your IdP in the **Description** field, which will appear to users with the phrase “Login with [IdP]” on the login screens, then click **Choose File** to upload the metadata file.



- **Metadata URL:** This option will require that you obtain a metadata URL that will import the SSO configurations into Service Manager. After obtaining the URL, enter the name of your IdP in the **Description** field, which will appear to users with the phrase “Login with [IdP]” on the login screens. Enter a valid metadata URL from your IdP in the **Metadata URL** field, then click **Import**. The URL will import the required configurations and should be similar to the following:

<https://adfs.example.com/FederationMetadata/2007-06/FederationMetadata.xml>

*Note: The URL you enter in the **Metadata URL** field must **exactly** match what has been entered into your IdP's configurations, including the case (upper-case or lower-case letters) and slash (/ or \) direction.*



The screenshot shows a dialog box titled "Database Connection" with a close button (X) in the top right corner. The dialog has four tabs: "Perspective", "Analysis Expert Connection", "Report Service", and "Authentication Mode". The "Authentication Mode" tab is selected. Inside the dialog, there are two checked checkboxes: "Perspective Authentication" and "SAML Authentication". Below these are three radio button options: "Metadata file", "Metadata URL" (which is selected), and "Manual settings". There is a "Description" text box containing the word "Example". Below that is a "Metadata URL" text box containing the URL "https://adfs.example.com/FederationMetadata/2007-08/Federat". To the right of the URL box is an "Import" button.

6. Click **OK**, then save your changes.

Manual Settings

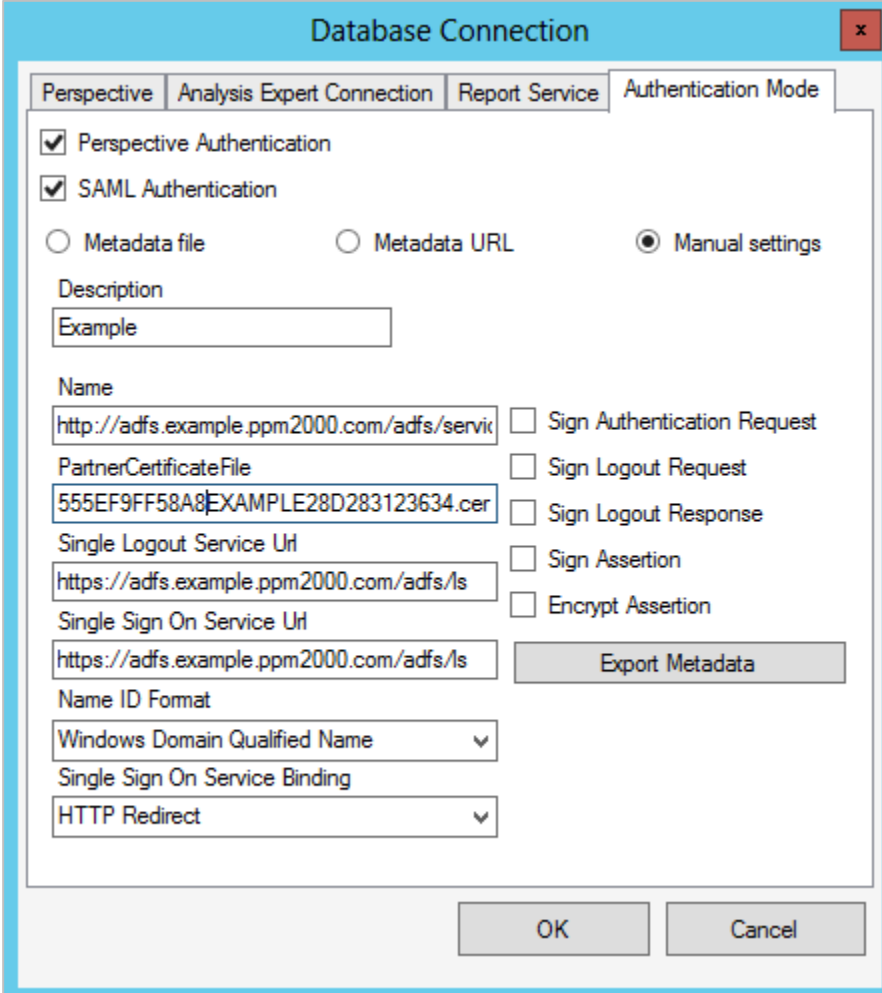
If you're not importing metadata via a file or URL, you must configure your IdP's settings manually. Contact your IdP for instructions on obtaining the required information.

1. In Service Manager, click **Database** in the pane to the left.
2. Double-click a database to edit it.
3. Click the **Authentication Mode** tab.
4. Select the **SAML Authentication** checkbox.

*Note: If this option is unavailable, the service provider information has not been properly configured. See the **Identity Provider Configuration** section above for more information.*

5. Select the **Manual settings** option.
6. Complete the following fields:
 - **Description:** The name of your IdP, which will appear to users with the phrase "Login with [IdP]" on the login screens.
 - **Name:** The exact name of the IdP as provided by the IdP.

- **Partner Certificate File:** Used to verify the assertions have come from the IdP. This file must be saved to the ***PerspectiveInstallationPath*\PerspectiveServices\SAML\Certificates** folder.
- **Single Logout URL:** The URL from which the IdP accepts logout requests.
- **Single Sign On Service:** The URL from which the IdP accepts SSO requests.
- **Name ID Format:** The username format provided to the IdP.
- **Single Sign On Service Binding:** The binding used by the IdP to authenticate (usually HTTP Redirect).
- **Sign Authentication Request:** Select this checkbox if the authentication request should be signed.
- **Sign Logout Request:** Select this checkbox if the logout request should be signed.
- **Sign Logout Responses:** Select this checkbox if the logout response should be signed.
- **Sign Assertion:** Select this checkbox if the assertions should be signed.
- **Encrypt Assertions:** Select this checkbox if the assertions should be encrypted.



The screenshot shows the 'Database Connection' dialog box with the 'Authentication Mode' tab selected. The 'Manual settings' radio button is chosen. The 'Description' field contains 'Example'. The 'Name' field contains 'http://adfs.example.ppm2000.com/adfs/service'. The 'PartnerCertificateFile' field contains '555EF9FF58A8EXAMPLE28D283123634.cer'. The 'Single Logout Service Url' field contains 'https://adfs.example.ppm2000.com/adfs/ls'. The 'Single Sign On Service Url' field contains 'https://adfs.example.ppm2000.com/adfs/ls'. The 'Name ID Format' dropdown is set to 'Windows Domain Qualified Name'. The 'Single Sign On Service Binding' dropdown is set to 'HTTP Redirect'. The 'Export Metadata' button is visible. The 'OK' and 'Cancel' buttons are at the bottom.

Database Connection

Perspective Analysis Expert Connection Report Service Authentication Mode

Perspective Authentication

SAML Authentication

Metadata file Metadata URL Manual settings

Description

Example

Name

http://adfs.example.ppm2000.com/adfs/service

PartnerCertificateFile

555EF9FF58A8EXAMPLE28D283123634.cer

Single Logout Service Url

https://adfs.example.ppm2000.com/adfs/ls

Single Sign On Service Url

https://adfs.example.ppm2000.com/adfs/ls

Name ID Format

Windows Domain Qualified Name

Single Sign On Service Binding

HTTP Redirect

Sign Authentication Request

Sign Logout Request

Sign Logout Response

Sign Assertion

Encrypt Assertion

Export Metadata

OK Cancel

7. Click **OK** then save your changes.

Export Metadata

Once you've completed the configurations in the previous sections, your IdP will likely require Perspective metadata in order to complete the SSO process. This information can be exported into a file using the **Export Metadata** tool in Service Manager.

1. In Service Manager, click **Database** in the pane to the left.
2. Double-click a database to open it.
3. Click the **Authentication Mode** tab.
4. Select the **Manual Settings** option.

5. Click **Export Metadata**.
6. Navigate to the ***PerspectiveInstallationPath*\PerspectiveServices\SAML\Certificates** folder, or an alternate location you may have selected in the previous section.

7. Select a file name and location to export the metadata.





Note: It's recommended that you save the metadata file in

***PerspectiveInstallationPath*\PerspectiveServices\SAML\Metadata** in the Perspective services installation directory.

8. Click **OK** and the metadata file will be opened. Either upload a copy of this file to your IdP server or save a copy in the ***PerspectiveInstallationPath*\PerspectiveServices\SAML\Metadata** folder if you did not choose that location in step 6.

Perspective Configurations

Once the Service Manager and IdP configurations are complete, a Perspective administrator must enter each user's SSO username (as it's configured in the IdP's settings) in the **Corporate ID** field by going to **Administration > Users > User Details**.

Linked Person <input type="text" value="Bernard, Milly R"/>  	Role <input type="text" value="Chief Security Officer (Director)"/>
First Name <input type="text" value="Milly R"/>	Last Name <input type="text" value="Bernard"/>
Perspective Logon ID <input type="text" value="ets2"/>	Corporate ID <input type="text" value="millybernard"/>
Change Password <input type="checkbox"/> Change Password On Login	Approved By <input type="text" value="No Value"/>  

See the [Perspective Administrator's Guide](#) for more information on entering this information in a user's profile.

Integration Services

Integration Services should not require any additional configuration as all SAML authentication information should be in the Perspective configuration file.

Service Clustering

Note: These configurations apply only to users installing Perspective with the Dispatch application. If you're not installing Dispatch, skip this section.

The following are optional advanced configurations available to users employing the Dispatch application. In order to complete these advanced configurations, the service cluster database must first be restored on the database server (see [Database Restore](#) for more information). Additionally, Perspective Services, including Integration Services, must be deployed on the web servers.

6. Navigate to the install directory of **Integration Services**. By default, the directory is located at **C:\inetpub\wwwroot\Perspective5.4\IntegrationServices**.
7. Open the **web.config** file.
8. Under **appSettings**, make changes as needed to the following settings for deployed web server:
 - **PerspectiveConfigFilePath**: The physical path where Perspective Services is deployed.
 - **ServiceClusters**: Enter **true** or **false** to enable or disable service clustering for Dispatch.
 - **ClusterServiceURL**: The **Integration Services** URL (**DispatchSystem** service) of the node within the cluster. This URL must be accessible by other nodes within the cluster in order for service clustering to work.
4. If the **ServiceClusters** value is set to **true**, the database connection must be added to point to the service clustering database. For example:

```
<add name="Perspective.IntegrationService.Properties.Settings.SystemDatabase"
connectionString="Data Source=<dbserver\dbname>;Initial Catalog=<dbname>;user
id=<user>;password=<password>;Application Name=Integration Services" />
```

Note: Avoid making changes to other cluster-related app settings, including:

- **ClusterDatabaseLockTimeoutMilliseconds**
- **ClusterRegistrationHeartbeatIntervalMilliseconds**
- **ClusterRegistrationTimeoutMilliseconds**
- **InitialMasterCacheTimeOutMilliseconds**
- **PeerHeartbeatIntervalMilliseconds**
- **PeerReceiveBufferSize**

Any inconsistencies on these values between two nodes within the cluster may cause issues with service clustering.

5. Save your changes in the **web.config** file then close.

Email Notifications

In Perspective, users may send email notifications containing incident or case details or report attachments through **Simple Mail Transfer Protocol (SMTP)**. Otherwise, email notifications may be sent when new investigators are assigned to an investigation or when assignments are created, modified, or completed.

To set up email notification options, select the **Configuration** component in the Perspective Service Manager menu and open the **Notification** tab. Alternatively, the email function can be disabled by selecting the **Do not use mail options** radio button.

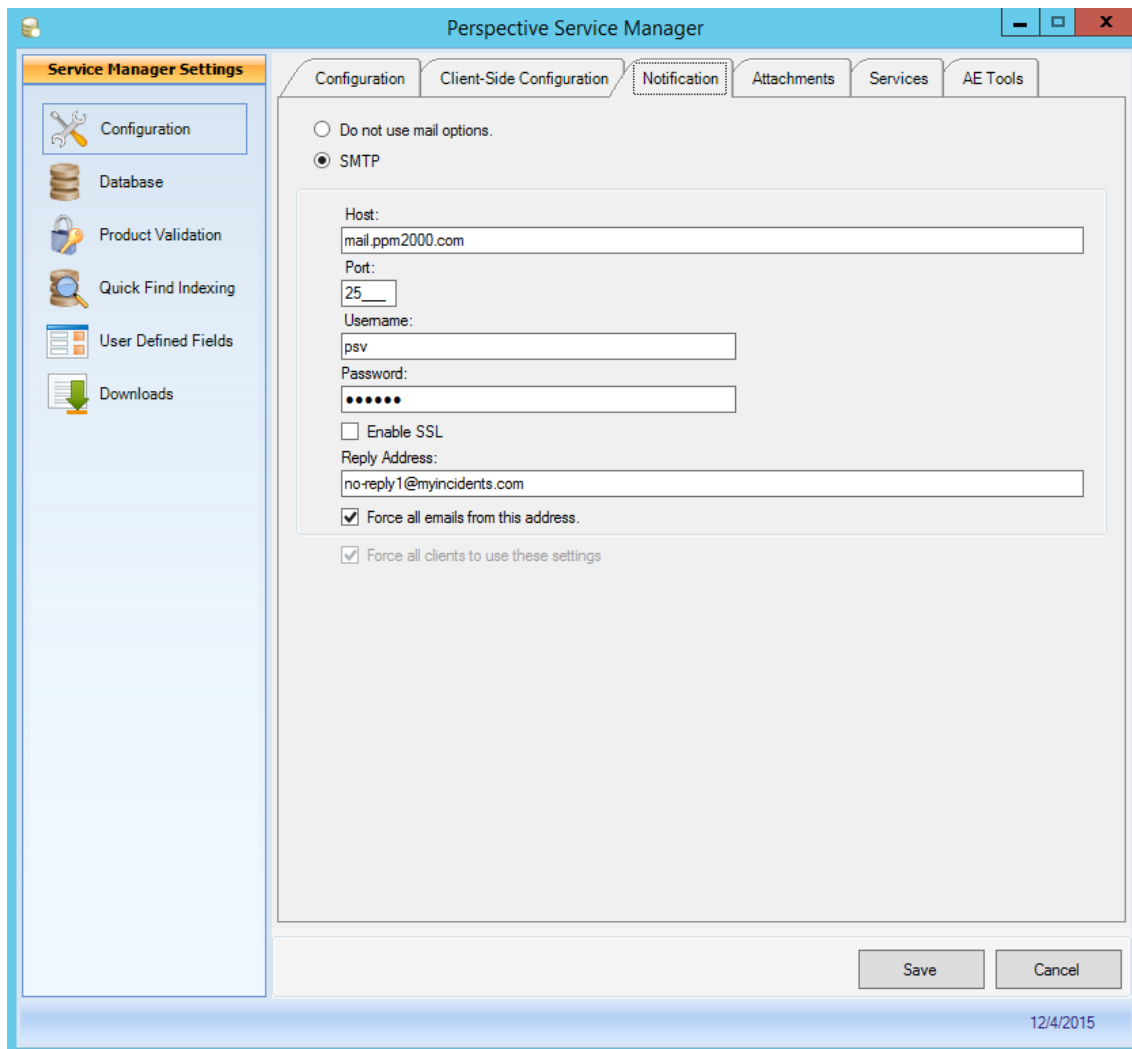
Connect to an External SMTP Server

To use an SMTP server to send emails from Perspective, select the **SMTP** radio button and enter the appropriate information for connecting to the SMTP server:

- **Host:** The domain name of the SMTP service.
- **Port:** The port the SMTP service will be listening on for connections.
- **Username:** A valid username to connect to the SMTP service.

- **Password:** The appropriate password for the username.
- **Enable SSL:** Select this option to encrypt the SMTP connection with Secure Socket Layer (SSL).
- **Reply Address:** By default, the SMTP service will include the address entered in this field when sending emails, unless the Person who is currently logged in has an email address saved on their record.
- **Force all emails from this address:** Selecting this checkbox will force **all** emails sent from Perspective to use the **Reply Address** as a return email address, even if the currently logged in Person has a primary email address saved on their record.

The email settings outlined above will be used as system defaults for every client.



Uploading Attachments

Perspective allows users to attach any file type to any data record in the application. These files are stored directly in the SQL database. Attachment size is the greatest factor in determining how much space will be required in SQL.

To set up the maximum attachment size, select the **Configuration** component in the Perspective Service Manager menu and open the **Attachments** tab.

Perspective can support files up to 2 GB in size (SQL's limit for binary data types); however, due to restrictions you may have on the space available for your Perspective database or bandwidth in your network, we do include an option to decrease this 2-GB limit to a size that can be better supported in your environment.

- On SQL Standard or Enterprise, this value can be set between 1 MB and 2000 MB. The default is set to 250 MB.
- On SQL Express, this value can be set between 1 MB and 50 MB. The default is 10 MB.

To change this value to an appropriate value for your organization, move the slider.

Configuration Client-Side Configuration Notification **Attachments** Services AE Tools

Specify maximum allowed attachment size for the client.

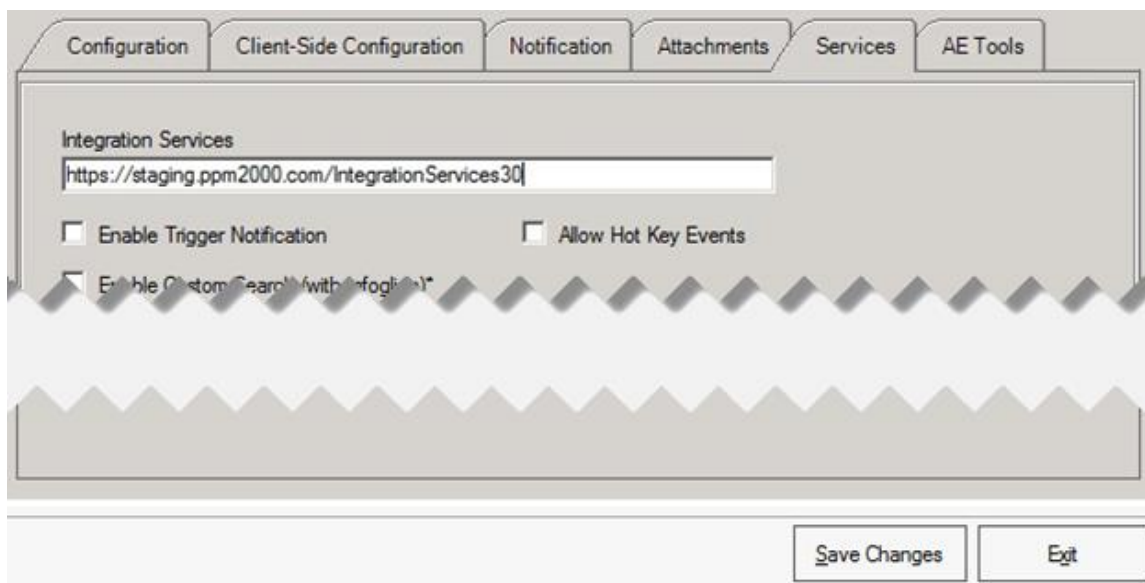
Max attachment size: **250 MB**

(Upper limit is 2GB for SQL Server 2005/2008 and 50MB for SQL Express)

Save Changes Exit

Integration Services URL

1. To enable event trigger in Integration Services, select the **Configuration** component from the Perspective Service Manager menu and open the **Services** tab.
2. Enter the URL set up with the Integration Services in the **Integration Services** field.
3. To enable trigger events on create and update, check the **Enable Trigger Notification** box. To enable context-sensitive events, check the **Allow Hot Key Events** box.

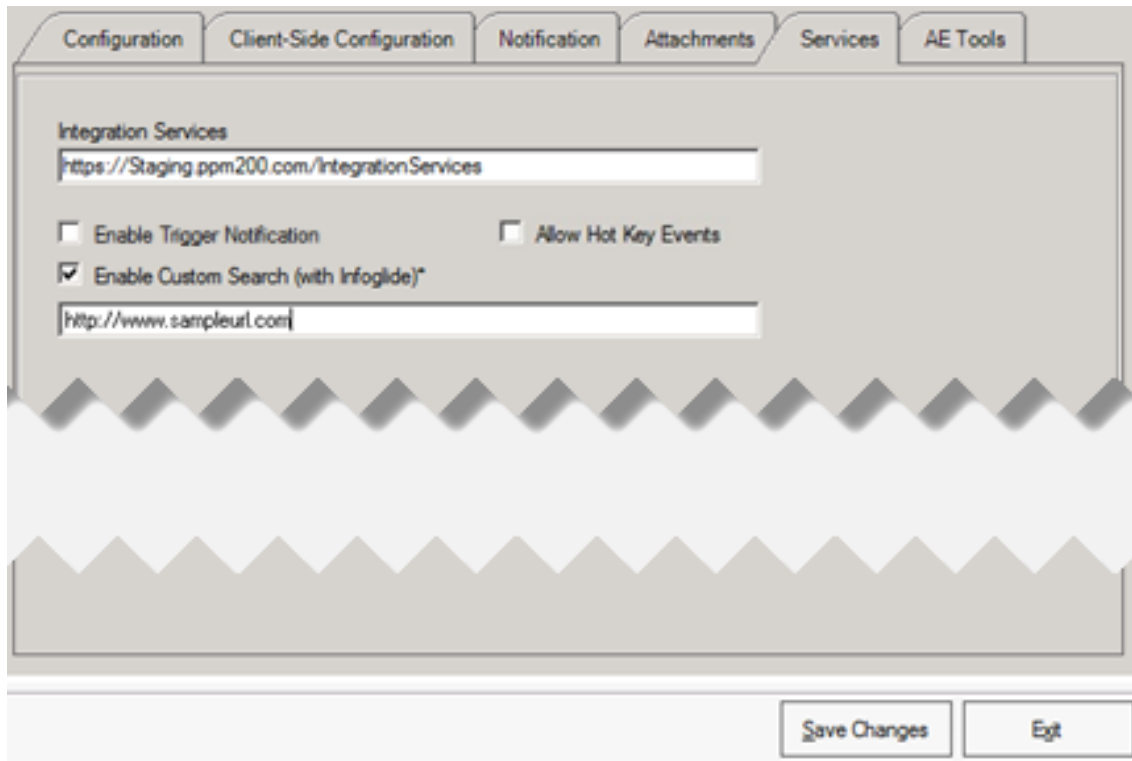


Custom Search Integration

With Perspective's Custom Search feature, you can integrate Perspective with Infoglide Identity Resolution Engine™ (IRE) to search several data sources at once. Complete the following steps to enable this integration. Note that you must first configure your Perspective database within the Identity Resolution Engine before proceeding.

To set up the Custom Search feature, select the **Configuration** component from the Perspective Service Manager menu and open the **Services** tab. Check the **Enable Custom Search (with Infoglide)** box and enter the URL for the Infoglide Identity Resolution Engine in the field below.

Note: To access the Custom Search feature, users must be granted the appropriate access rights in Perspective. For details on administering Custom Search access for roles and users, see “Select general role rights” and “Set general user rights” in the “Roles” and “Users” sections of the [Perspective Administrator’s Guide](#).



The screenshot shows a configuration window with several tabs: Configuration, Client-Side Configuration, Notification, Attachments, Services, and AE Tools. The 'Services' tab is active. Under the heading 'Integration Services', there is a text input field containing 'https://Staging ppm200.com/IntegrationServices'. Below this are three checkboxes: 'Enable Trigger Notification' (unchecked), 'Allow Hot Key Events' (unchecked), and 'Enable Custom Search (with Infoglide)*' (checked). A second text input field contains 'http://www.sampleurl.com'. At the bottom right of the window are two buttons: 'Save Changes' and 'Exit'.

Mass Notifications

In Perspective, users can integrate their MIR3SM in EnterpriseTM solution into Perspective in order to send mass notifications about selected activities via Perspective DispatchLog.

To set up the Mass Notification feature, select the **Configuration** component from the Perspective Service Manager menu and open the **Services** tab. Check the **Enable Mass Notification (with MIR3)** box and enter the **Mass Notification URL**, **Username** and **Password** provided by MIR3 in the field below.

Configuration Client-Side Configuration Notification Attachments **Services** AE Tools

Integration Services
https://Staging.ppm2000.com/IntegrationServices30

Enable Trigger Notification Allow Hot Key Events

Enable Custom Search (with Infoglide)*

Enable Mass Notification (with MIR3)
Mass Notification Url
http://inwebservice.mir3.com/services/v1.2/mir3

Username: QATest
Password: ●●●●●●

* Custom Search should not be enabled unless integrating an external search tool from Infoglide to search several data sources at once.

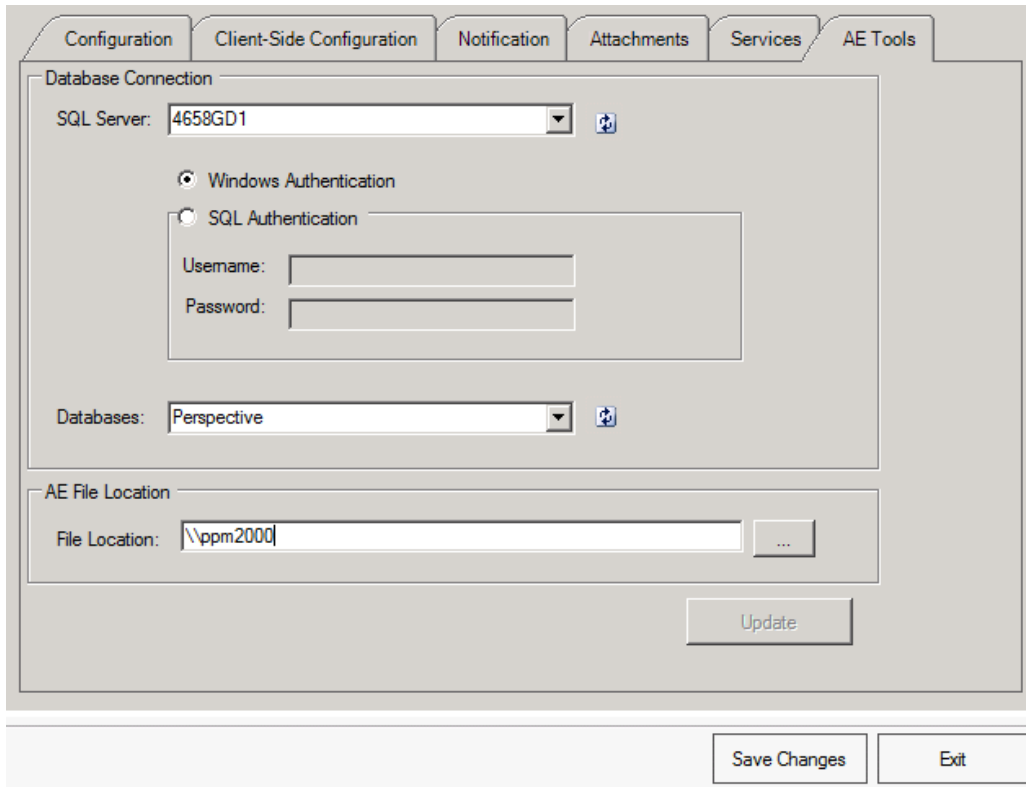
Save Changes Exit

Analysis Expert Tools

If you experience difficulties with the correct Analysis Expert (AE) query display, this function must be used to update the AE **.dat** file provided by Technical Support.

1. Select the **Configuration** component from the Perspective Service Manager menu and open the **AE Tools** tab.
2. Specify the **SQL Server**.
3. Select either the **Windows** or **SQL Authentication**. If you selected SQL Authentication, enter the correct **Username** and **Password**.
4. Choose the **Database** you wish to update your queries on.
5. Specify the correct path to the AE **.dat** file provided by Technical Support in the **File Location** field.

- Click **Update**.



Quick Find Indexing

With Perspective’s Quick Find tool, you can quickly search for text anywhere in the database, including text within attachments. This works by scanning an index file generated on the server.

Quick Find Indexing supports the following file formats for attachments:

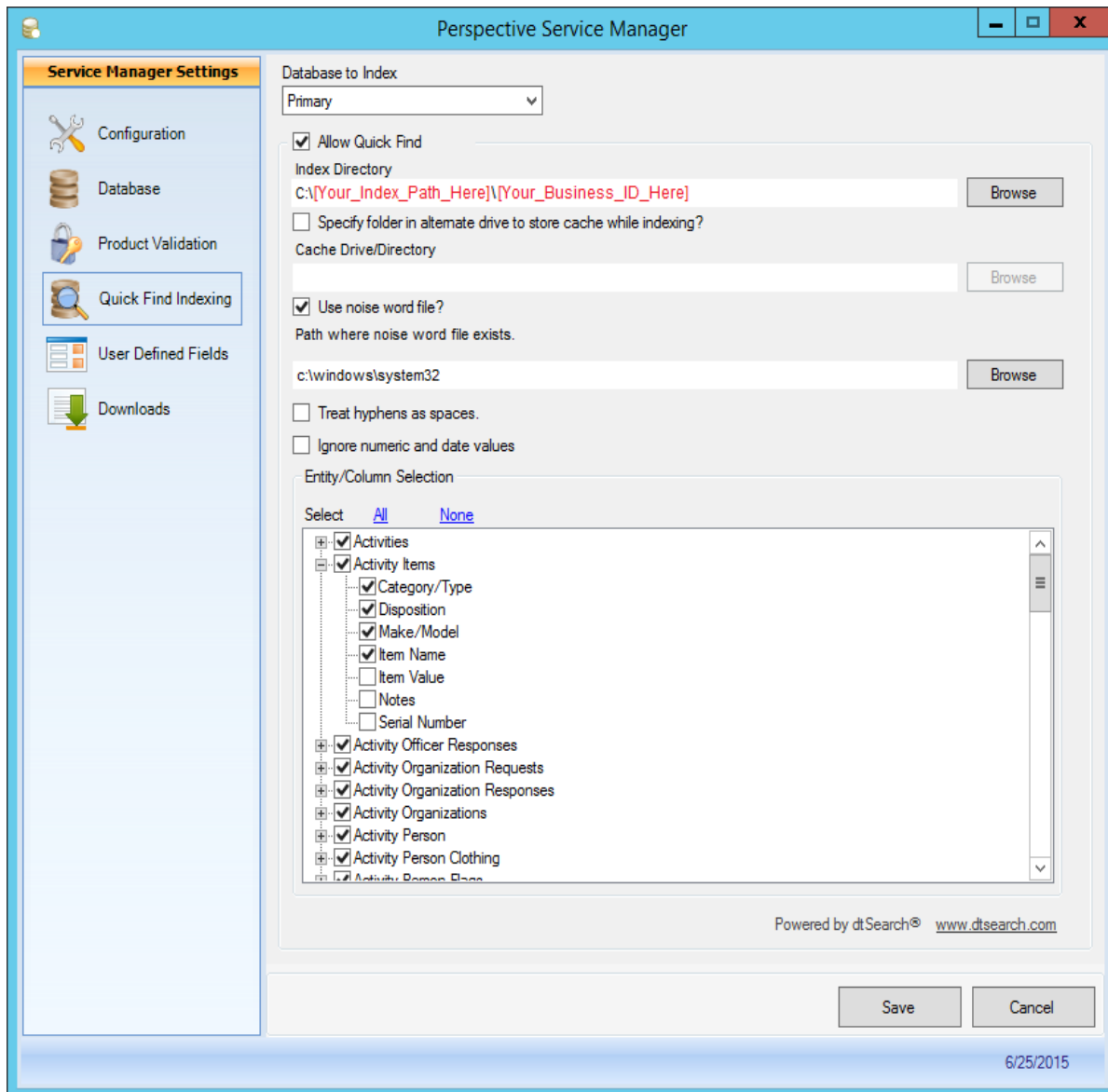
.doc, docx	.pdf	.txt
.docm	.rtf	.wpd
.log	.sms	.wps
.msg	.text	.xls, .xlsx

- To set up indexing on your database, select the **Quick Find Indexing** component in the Perspective Service Manager menu.
- To enable this feature, select **Allow Quick Find**.

3. Select an **Index Directory** to store the index files. The name of the index directory must end with your organization's business ID name (e.g. C:\Temp\[BusinessIDName]) and IIS must have access to read this directory.

*Note: If you're using **Perspective On Premise** and your organization's business ID is Default, the index entry will end in Default (e.g. C:\Temp\Default).*

4. *Optional:* You can expect the Index file to be approximately 1/3 of your database size. If storage on the local drive would be problematic, you can force the index cache to use a separate directory by checking **Specify folder in alternate drive to store cache while indexing?** and then selecting a directory.
5. *Optional:* If you would like certain common words to be ignored when indexing (e.g., a, the, an, at, to, etc.), select **Use noise word file?** and specify the directory where your Noise.dat file exists. Perspective does not provide a Noise.dat file.
6. *Optional:* If you would like hyphenated words to be indexed as two separate words, you can select **Treat hyphens as spaces.**
7. *Optional:* If you would like the index files to ignore any numeric text, you can select **Do not index numeric values.**
8. Expand the nodes listed under **Tables** and select each table you want data to be indexed from individually. Note that attachments are indexed separately from the main entities and can be found at the bottom of the list.
9. Click **Save.**



10. As data is added, deleted, or modified in the database, the index must be kept up-to-date. You can perform full indexing or incremental indexing on a database by using the Perspective.Indexer.exe program. To do this, open a Windows command prompt and navigate to the Perspective Service Manager directory as follows:

```
cd "C:\Program Files\Resolver Inc\Perspective\5.4\ServiceManager"
```

11. To perform full indexing on the default database, enter the following command:

```
Perspective.Indexer.exe  
/c="C:\[PerspectiveServicesPath]\Perspective5.4\PerspectiveServices\Perspective_De  
fault.config"
```

12. To perform full indexing on a specific database, add the /d switch to the command:

```
Perspective.Indexer.exe  
/c="C:\[PerspectiveServicesPath]\Perspective5.4\PerspectiveServices\Perspective_De  
fault.config" /d="database name"
```

13. To perform incremental indexing on the default database, add the /i switch to the command:

```
Perspective.Indexer.exe  
/c="C:\[PerspectiveServicesPath]\Perspective5.4\PerspectiveServices\Perspective_De  
fault.config" /i
```

14. To perform incremental indexing on a specific database, use the /d and /i switches:

```
Perspective.Indexer.exe  
/c="C:\[PerspectiveServicesPath]\Perspective5.4\PerspectiveServices\Perspective_De  
fault.config" /d="database name" /i
```

15. Repeat steps 10-14 for every database you want to index.

16. There are other switches available when using Perspective.Indexer.exe. To view all of the switches and their functions, enter the command `Perspective.Indexer.exe ?`

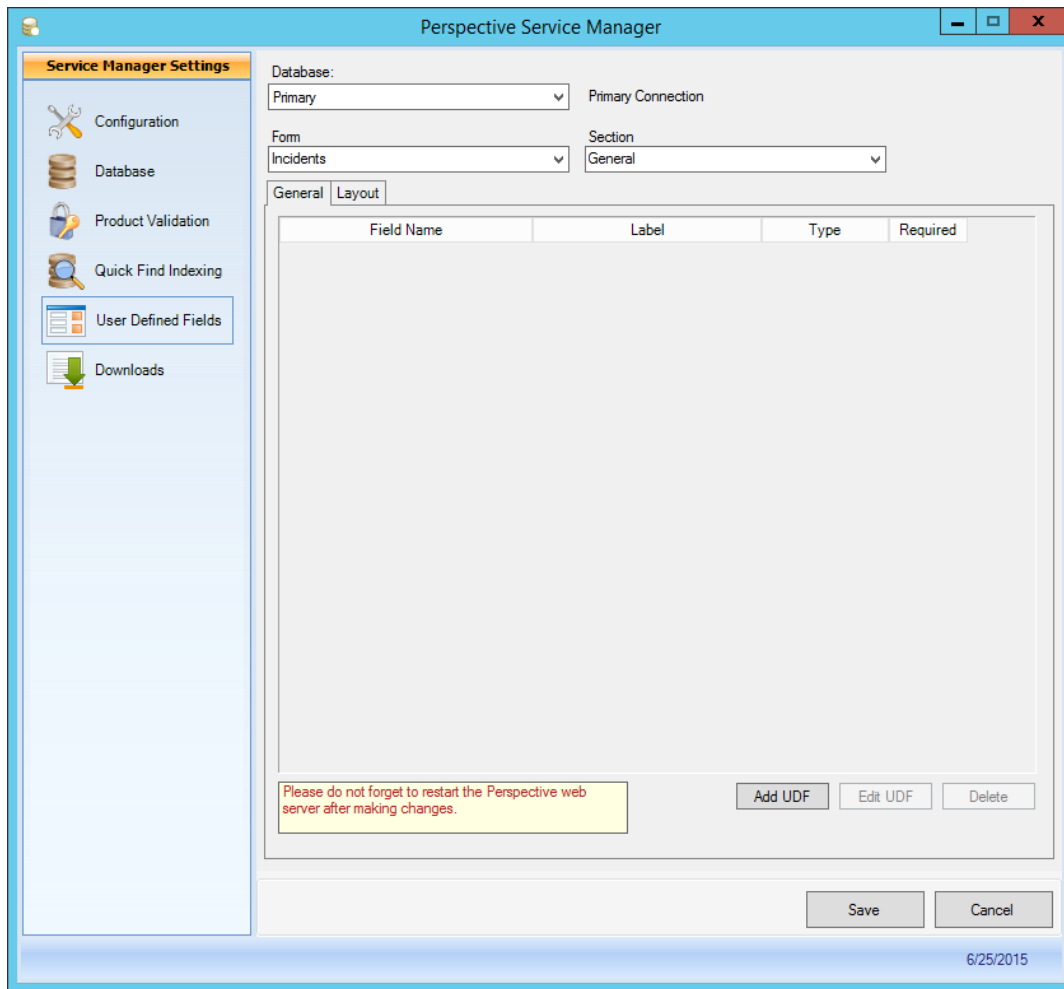
User Defined Fields

Although user defined fields (UDFs) can only be created by specialized users with access to both the server machine and the Service Manager, they are maintained by Administrators in the same manner as all other fields within Perspective. Visibility and access rights to a user defined field can be controlled under System Privileges, Role Privileges or User Privileges. UDF labels can be modified and created for other languages under Form Labels. Moreover, if the UDF is a lookup field, lookup values and workgroup visibility for these values can be customized under Lookups.

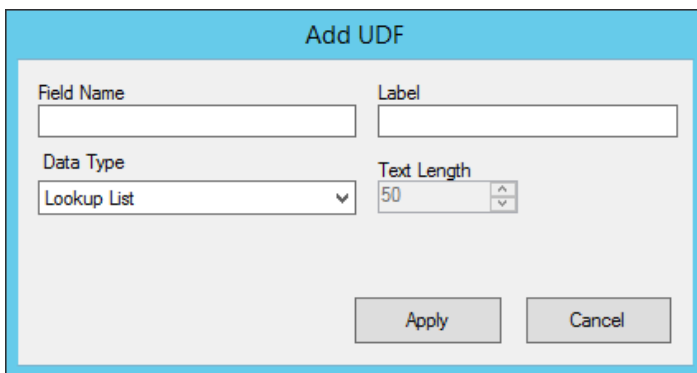
You may add user defined fields to the Item, Person, Organization and Vehicle forms under the General tab, as well as to numerous sections of the Incident and Case forms.

Note: The Case component is only available in the Premium edition of Perspective.

1. To set up user defined fields for Perspective, select the **User Defined Fields** banner at the bottom of the Perspective Service Manager menu and open the **General** tab.
2. From the **Form** lookup list, select the data form in which you would like the new user defined field to appear. Your options are as follows:
 - Incidents
 - Incident Items (Involved Items)
 - Incident Organizations (Involved Organizations)
 - Incident > Persons (Involved Persons)
 - Incident > Vehicles (Involved Vehicles)
 - Items
 - Organizations
 - Persons
 - Vehicles
 - Cases
 - Activities
3. From the **Section** lookup list, select the specific section of the form that you would like the user defined field to appear in. For all forms except Incidents and Cases, the only option available is the General tab. For the Incidents form, you may choose the General, Investigations (Details) or Controls tab. For the Cases form, you may choose either the General or Controls tab.
4. Click the **Add** button at the bottom of the window. An Add UDF dialog box will open.
5. Enter the new user defined field's name in the **Field Name** text box. Note that no special characters or spaces may be used—letters only. Then, assign the field its default System English **Label**. The System English label is what users will see on the Perspective form.
6. Choose the field type from the **Data Type** lookup list. The available field type options for UDFs are Number (for whole numbers), Decimal Number (for numbers with up to two decimal places), Text, Date, Yes/No (for a checkbox field) and Lookup List. If you selected Text as the data type, you may also specify the maximum number of characters that can be entered in the field under Text Length.



7. Click **Apply**. The user defined field’s details will now appear under the General tab.



- To edit the user defined field, click the arrow to the left of the Field Name to select the entire row and click the **Edit** button. Make changes in the Edit UDF dialog box and click Apply.

- To delete the user defined field, click the arrow to the left of the Field Name to select the entire row and click the **Delete** button. A Delete UDF confirmation window will open warning you of potential loss of data. If you choose to delete the selected UDF and click Yes, any data previously tracked in the UDF will be erased as well. Instead, it's recommended that you hide or lock the UDF within Perspective, if you no longer wish to use it to track data.
8. To view the user defined field with its default form location, select the **Layout** tab. The **Top** and **Left** values indicate the number of pixels that the UDF will be located from the top left corner of the User Defined Fields section of the form. The User Defined Fields section always appears at the bottom of the form.

The screenshot displays a configuration window for a User Defined Field (UDF). At the top, there are two dropdown menus: 'Form' set to 'Incident Persons' and 'Section' set to 'General'. Below these are two tabs: 'General' and 'Layout', with 'Layout' being the active tab. The main area shows a scrollable window containing a UDF labeled 'udfMaritalStatus'. A blue box highlights the UDF, and a text box below it displays 'Top: 100 - Left: 210'. At the bottom right of the scrollable area, there are three buttons: 'Default Layout', 'Previous Layout', and 'Save Layout'. A mouse cursor is pointing at the 'Save Layout' button.

- Click and drag the UDF label to move the UDF to an alternative location on the form. The entire scrollable window beneath the Layout tab is representative of the User Defined Fields section of the form. Click **Save Layout** to save the chosen UDF location on the form.
- At any time, you may click **Default Layout** to return the UDF to its original assigned position on the form. To return the UDF to its last saved location, click **Previous Layout**.

Troubleshooting Tips

Event Viewer

When an error occurs in your Perspective session, first check Event Viewer to see if it has been recorded here.

1. Go into **Windows Event Viewer**.
2. Click the **Windows Logs** folder.
3. Click the **Application** sub-folder. Most errors that have occurred in Perspective will be logged here.

Perspective Server

Ensure Perspective Services is set up

1. Open IIS Manager, navigate to the Perspective Services Virtual Directory, and try to browse the **Service.asmx** file.
2. If the page that is displayed reads “Service”, the install was successful.

If you get an error code page:

- a. Check the properties of the Perspective Services Directory and ensure it is running under Microsoft .NET 4.0 on the ASP.NET tab.
- b. Re-install Microsoft .NET 4.0 with ISS using the following command line:
`C:\WINDOWS\Microsoft.NET\Framework\v4.0.30319\aspnet_regiis.exe`

Connect to the database using ODBC

1. Select *Control Panel > Administrative Tools > Data Sources (ODBC)*, and open the **System DSN** tab.
2. Click **Add** to create a data source, select **SQL Server**. Click Finish.

3. Enter the name "Perspective" and select the name of your SQL Server.
4. If your Perspective database is using SQL authentication, select the SQL server authentication option and enter your SQL login credentials.
5. Click **Finish**, and then click **Test Data Source**.

Test the application pool

An application pool is used to connect to the database server. To test if there is an issue with the Web application pool, change the account to **Network Services** and see if it runs. If you are using Windows Authentication for your Perspective database, change the application pool to the same one used for your database. Reset the application pool, and then launch Perspective and try to login.

Restart IIS

Right-click your Computer icon and select **Manage**. Expand the **Services and Applications** folder and right-click **Internet Information Services (IIS)**. Select **All Tasks**, then restart IIS and click OK. Another way to restart IIS is to run the command line `iisreset` from the Start menu.

Database Server

Ensure that the database login account has been assigned DBO access rights

1. In Enterprise Manager, select *Security > Logins*.
2. Double-click the domain user account that the Perspective server uses to connect to the database (e.g., the test account "PerspectiveDBCon").
3. On the **Database Access** tab, select the Perspective database and ensure that **dbo** access is assigned.

Reporting Services Server

For assistance and information on setting up **SQL Reporting Services**, view the deployment guide on Microsoft's Web site: [http://technet.microsoft.com/en-us/library/ms159868\(SQL.90\).aspx](http://technet.microsoft.com/en-us/library/ms159868(SQL.90).aspx)

Check the version of the Microsoft .NET Framework

If .NET Framework 3.5 is enabled on the machine, only client-side components of Reporting Services will be installed. If necessary, remove the .NET Framework 3.5 before installing Reporting Services, and re-install 3.5 afterwards using the following command line:

```
C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_regiis.exe
```

Specify path for .bat file

1. Using the Windows Start menu's Search function, search for the **rs.exe** file.
2. Place a copy of the rs.exe file in the *Perspective Install > Reports Setup* folder.

Perspective Client

Connect to the Web site

Open your Web browser and enter the following URL:

```
https://<servername>/PerspectiveServices/Service.asmx
```

Ensure SQL login account is configured properly

The SQL login account (e.g., the test account "PerspectiveDBCon") needs permissions.

Troubleshoot Windows authentication issues

Note: Windows authentication is available for **Perspective only** and must be enabled through the **Perspective_default.config** file. If you wish to use single sign-on for all Perspective modules (Perspective, Dispatch, Dashboard, and/or Web Portal) you must enable [SAML authentication](#).

1. Open the **Perspective_default.config** file. By default, this file is located at
C:\inetpub\wwwroot\Perspective5.4\PerspectiveServices.
2. Confirm the value in the **<WindowsAuthentication>** tag is set to **true**.

Note: You **cannot** enable both Windows authentication and SSO in the **Perspective_default.config** file by changing the **<SSOAuthentication>** tag's value to **true**.

```
<MSReportServiceUser>  
  User_Domain_Name;User_Login_Name;User_Password</MSReportServiceUser>  
  <PerspectiveAuthentication>true</PerspectiveAuthentication>  
  <WindowsAuthentication>>false</WindowsAuthentication>  
  <SSOAuthentication>>false</SSOAuthentication>  
  <PartnerIdentityProvider Name="" Description=""
```

3. In IIS, open the **Default Web Site** and your **Perspective Services** site.
4. Double-click the **Authentication** icon.
5. Ensure that:
 - Windows Authentication is enabled.
 - Anonymous Authentication is disabled.
6. Return to the previous screen and click **Edit Permissions** on the right-side menu.
7. Open the **Security** tab, click **Edit**, and add appropriate **Perspective Groups with View, Read, and Execute** permissions.
8. Reset IIS once you have completed the steps to ensure the changes take place.
9. Test logging in with a user who is set up for Windows Authentication in Perspective.

Troubleshoot application download issues

Using Command Prompt, you can remove cached data and uninstall Perspective from your machine.

Note: Deleting this cached data will remove all ClickOnce data from your computer.

1. Close all running applications. This will prevent the removal of the applications from the App Cache.
2. Right-click the **Start/Windows** icon in the bottom-right corner of your screen.
3. Click **Run**.
4. Type or paste **rundll32 dfshim CleanOnlineAppCache** in the the **Run** dialog.
5. Click **OK** to run the command.

Note: Running this command will delete the contents of the 2.0 folder (C:\Users\UserName\AppData\Local\Apps\2.0 and will remove all ClickOnce applications from your computer.

6. Browse to the Perspective Services URL.
7. Click the **Launch Perspective** button to re-download the entire Perspective application.
8. Click **Run** to launch the Perspective application.
9. Log onto Perspective (see the **Perspective Administrator's Guide** or **Perspective User's Guide** for more information on logging on). If the problem persists, please contact Resolver Technical Support at 1-877-776-2995 for assistance.

Error Messages

Error Message	Explanation
No Connection.	Perspective Client error
<p>Solution</p> <ul style="list-style-type: none"> • Launch the Perspective client from the Perspective server and attempt to logon. • Make sure the user account is a member of the IIS_WPG group on the Perspective server. 	
Response is not well formed .XML.	Perspective Client error
<p>Solution</p> <ul style="list-style-type: none"> • May be due to a missing bracket or other formatting issue in the Perspective_Default.config file. • May also be a permissions issue. See your local Security Policy. 	
Connection to the service not found/SQL Exception/Login failed for user.	Perspective Server error
<p>Solution</p> <p>Ensure the application pool account has access to the database. The account that the Perspective server is using to connect to the database must be specified as the Application Pool identity, and requires membership in the IIS_WPG.</p>	

Contact Information

Technical Support

Toll Free: 1-877-776-2995
Phone: (780) 448-0616
Email: support@resolver.com
Website: <https://support.resolver.com>

Resolver

Toll Free: 1-888-776-9776
Phone: (780) 448-0616
Fax: (780) 448-0618
Email: information@resolver.com
Website: <http://www.resolver.com>

Appendix A – Indexable Fields

Below is a complete list of the standard indexable fields that appear in Perspective and Service Manager. Once indexed, these fields become searchable using the Quick Find tool in Perspective.

Note: Custom fields (also known as **UDFs** or **user defined fields**) can also be indexed so they become searchable and appear in Service Manager.

Section	Sub-Section(s)	Field
Activities	Activities	Access Level
Activities	Activities	Activity Number
Activities	Activities	Activity Status
Activities	Activities	Address 1
Activities	Activities	Address 2
Activities	Activities	Call Source
Activities	Activities	Code
Activities	Activities	Contact Number
Activities	Activities	Description
Activities	Activities	Disposition
Activities	Activities	Notes
Activities	Activities	Officer Status
Activities	Activities	Organization Status
Activities	Activities	Postal Code
Activities	Activities	Priority
Activities	Assignments	Assignment Type
Activities	Assignments	Message/Task
Activities	Activity > Items	Category/Type
Activities	Activity > Items	Disposition
Activities	Activity > Items	Item Name
Activities	Activity > Items	Item Value
Activities	Activity > Items	Linked Item
Activities	Activity > Items	Make/Model
Activities	Activity > Items	Notes
Activities	Activity > Items	Organization Owned By
Activities	Activity > Items	Person Owned By
Activities	Activity > Items	Serial Number
Activities	Activity > Officer Responses	Call Sign
Activities	Activity > Officer Responses	Officer Name
Activities	Activity > Officer Responses	Officer Response Notes
Activities	Activity > Officer Responses	OfficerStatus
Activities	Activity > Organization Requests	Comments

Section	Sub-Section(s)	Field
Activities	Activity > Organization Requests	Contact First Name
Activities	Activity > Organization Request	Contact Last Name
Activities	Activity > Organization Requests	Contact Middle Initial
Activities	Activity > Organization Requests	Contact Person
Activities	Activity > Organization Requests	Contact Phone
Activities	Activity > Organization Requests	Involvement Type
Activities	Activity > Organization Requests	Notified Type
Activities	Activity > Organization Requests	Organization
Activities	Activity > Organization Requests	Organization Name
Activities	Activity > Organization Requests	Organization Number
Activities	Activity > Organization Requests	Reference Number
Activities	Activity > Organization Requests	Request Assigned To Person
Activities	Activity > Organization Requests	Request Notes
Activities	Activity > Organization Requests	Request Type
Activities	Activity > Organization Requests	Tracking Number
Activities	Activity > Organization Responses	Contact Last Name
Activities	Activity > Organization Responses	Contact Middle Initial
Activities	Activity > Organization Responses	Contact Person
Activities	Activity > Organization Responses	Contact Phone
Activities	Activity > Organization Responses	ContactFirstName
Activities	Activity > Organization Responses	Involvement Type
Activities	Activity > Organization Responses	Notified By Person
Activities	Activity > Organization Responses	Notified Type
Activities	Activity > Organization Responses	Organization
Activities	Activity > Organization Responses	Organization Name
Activities	Activity > Organization Responses	Organization Number
Activities	Activity > Organization Responses	Organization Response Notes
Activities	Activity > Organization Responses	Organization Type
Activities	Activity > Organization Responses	OrganizationStatus
Activities	Activity > Organization Responses	Reference Number
Activities	Activity > Organization Responses	Responding Person
Activities	Activity > Organizations	Comments
Activities	Activity > Organizations	Contact First Name
Activities	Activity > Organizations	Contact Last Name
Activities	Activity > Organizations	Contact Middle Initial
Activities	Activity > Organizations	Contact Person
Activities	Activity > Organizations	Contact Phone
Activities	Activity > Organizations	Involvement Type
Activities	Activity > Organizations	Linked Organization
Activities	Activity > Organizations	Notified By
Activities	Activity > Organizations	Organization Name

Section	Sub-Section(s)	Field
Activities	Activity > Organizations	Organization Number
Activities	Activity > Organizations	Organization Type
Activities	Activity > Organizations	Organization Webpage URL
Activities	Activity > Organizations	Reference Number
Activities	Activity > Person > Clothing	Clothing Type
Activities	Activity > Person > Clothing	Color
Activities	Activity > Person > Clothing	Description
Activities	Activity > Person Flags	Severity Level
Activities	Activity > Person > Injuries	Description
Activities	Activity > Person > Injuries	Injury Cause
Activities	Activity > Person > Injuries	Severity
Activities	Activity > Person	Designation(s)
Activities	Activity > Person	Employee Number
Activities	Activity > Person	Eye Color
Activities	Activity > Person	First Name
Activities	Activity > Person	Flag Notes
Activities	Activity > Person	Gender
Activities	Activity > Person	Hair Color
Activities	Activity > Person	Initial
Activities	Activity > Person	Injured
Activities	Activity > Person	Involvement Type
Activities	Activity > Person	Last Name
Activities	Activity > Person	Linked Person
Activities	Activity > Person	Marital Status
Activities	Activity > Person	Notes
Activities	Activity > Person	Title
Activities	Activity > Vehicles	Color
Activities	Activity > Vehicles	Comments
Activities	Activity > Vehicles	Disposition
Activities	Activity > Vehicles	Driver Identified
Activities	Activity > Vehicles	Involvement Type
Activities	Activity > Vehicles	License Plate
Activities	Activity > Vehicles	Linked Vehicle
Activities	Activity > Vehicles	Make/Model
Activities	Activity > Vehicles	Plate Registered In
Activities	Activity > Vehicles	Style
Activities	Activity > Vehicles	Vehicle Value
Activities	Activity > Vehicles	VIN
Activities	Activity > Vehicles	Year
Activities	Attachments	Attachment Title
Activities	Attachments	Attachment Type

Section	Sub-Section(s)	Field
Activities	Attachments	Description
Activities	Attachments	File Extension
Activities	Attachments	File Name
Activities	Call Category	Call Category Name
Activities	Call Category	Code
Activities	Call Category	Level 1
Activities	Call Category	Level 2
Activities	Call Category	Level 3
Activities	Call Category	Level 4
Activities	Involved Items	Item Category
Activities	Involved Items	Item Name
Activities	Involved Organizations	Organization Number
Activities	Involved Organizations	Organization Type
Activities	Involved Persons	Gender
Activities	Involved Vehicles	Incident Number
Activities	Involved Vehicles	Make/Model
Activities	Geo Rollups	City
Activities	Geo Rollups	Country
Activities	Geo Rollups	Geo Rollup Name
Activities	Geo Rollups	Geo Rollup Name
Activities	Geo Rollups	Level4
Activities	Geo Rollups	Rollup Level
Activities	Geo Rollups	State/Province
Activities	Link Activities	Link Type
Activities	Link Activities	Linked From Activity
Activities	Link Activities	Linked To Activity
Activities	Link Activities	Notes
Activities	Link Activity To Incident	Link Effective Date
Activities	Link Activity To Incident	Link Type
Activities	Link Activity To Incident	Linked From Activity
Activities	Link Activity To Incident	Linked To Incident
Activities	Link Activity To Incident	Notes
Activities	Site Rollups	Address 1
Activities	Site Rollups	Building
Activities	Site Rollups	Location
Activities	Site Rollups	Postal Code
Activities	Site Rollups	Rollup Level
Activities	Site Rollups	Site
Activities	Site Rollups	Site Name
Activities	Site Rollups	Site Notes
Activities	Site Rollups	Site Rollup Name

Section	Sub-Section(s)	Field
Activities	Site Rollups	Site Rollups
Activities	Site Rollups	Threshold
Cases	Case > Assignments	Assignment Type
Cases	Case > Assignments	AttachmentFrom
Cases	Case > Assignments	Message/Task
Cases	Investigations	Incident Number
Cases	Investigations	Initiated By
Cases	Case > Investigation > Evidence Log	Evidence Disposition
Cases	Case > Investigation > Evidence Log	Evidence Log Status
Cases	Case > Investigation > Evidence Log	Evidence Name
Cases	Case > Investigation > Evidence Log	Evidence Type
Cases	Case > Investigation > Evidence Log	Evidence/Property From
Cases	Case > Investigation > Evidence Log	Evidence/Property Tag
Cases	Case > Investigation > Evidence Log	Found/Seized Location
Cases	Case > Investigation > Evidence Log	Item Description
Cases	Case > Investigation > Evidence Log	Notes
Cases	Case > Investigation > Evidence Log	Organization Owned By
Cases	Case > Investigation > Evidence Log	Owner Name Person
Cases	Case > Investigation > Evidence Log	Person In Possession
Cases	Case > Investigation > Evidence Log	Secured/Storage Location
Cases	Case > Investigation > Evidence Log	Seized By Person
Cases	Case > Investigation > Evidence Log	Seized From Person
Cases	Evidence Log > Status	Comments
Cases	Evidence Log > Status	Evidence Disposition
Cases	Evidence Log > Status	Status
Cases	Evidence Log > Status	Storage Location
Cases	Evidence Log > Status	Evidence/Property Tag
Cases	Evidence Log > Status	Person In Possession
Cases	Evidence Log > Status	Status Changed By Person
Cases	CasInvestigationInterviewHistory	ChangedByPersonDescription
Cases	CasInvestigationInterviewHistory	Reason
Cases	Case > Investigation > Interviews	Attached Digital Interview
Cases	Case > Investigation > Interviews	Interview Conducted by
Cases	Case > Investigation > Interviews	Interview From
Cases	Case > Investigation > Interviews	Interview Type
Cases	Case > Investigation > Interviews	Location of Interview
Cases	Case > Investigation > Interviews	Plain Text
Cases	Case > Investigation > Interviews	Subject of Interview
Cases	Case > Investigation > Interviews	Subject's Involvement Type
Cases	Case > Investigation > Interviews	Witness
Cases	Case > Investigation > Interviews	Word File

Section	Sub-Section(s)	Field
Cases	Case > Investigation > Log	Expense Type
Cases	Case > Investigation > Log	Log Notes
Cases	Case > Investigation > Log	Logs From
Cases	Case > Investigation > Log	Logs From
Cases	Case > Investigation > Log	Task Done By Person
Cases	Case > Investigation > Log	Task Type
Cases	Case > Investigation > Summaries	Author Person
Cases	Case > Investigation > Summaries	Plain Text
Cases	Case > Investigation > Summaries	Summary From
Cases	Case > Investigation > Summaries	Summary Type
Cases	Case > Investigation > Summaries	Word File
Cases	CasInvestigationSummaryHistory	ChangedByPersonDescription
Cases	CasInvestigationSummaryHistory	Reason
Cases	Case > Investigators	Comments
Cases	Case > Investigators	Investigator
Cases	Case > Investigators	Investigator Type
Cases	CaseNarrativeHistory	Reason
Cases	Narratives	Word File
Cases	Case > Reviews	Comments
Cases	Case > Reviews	Review Type
Cases	Cases	Access Level
Cases	Cases	Case Category
Cases	Cases	Case Description
Cases	Cases	Case Name
Cases	Cases	Case Number
Cases	Cases	Disposition
Cases	Cases	Org Rollup
Cases	Cases	Status
Cases	Case > Visibility	All Workgroups
Cases	Case > Visibility	Owner Workgroup
Cases	Class Rollups	Category
Cases	Class Rollups	Class
Cases	Class Rollups	Class Code
Cases	Class Rollups	Class Name
Cases	Class Rollups	Consequence
Cases	Class Rollups	Rollup Level
Cases	Class Rollups	Subcategory
Cases	Class Rollups	Type
Cases	Class Rollups	Class Rollup Name
Cases	Evidence Log > Status	Evidence Status
Cases	Evidence Log > Status	Person In Possession

Section	Sub-Section(s)	Field
Cases	Investigation > Interviews	Attached Digital Interview
Cases	Investigation > Interviews	Interview Conducted by
Cases	Investigation > Interviews	Interview Type
Cases	Investigation > Interviews	Plain Text
Incidents	Business Unit Rollups	Business Unit Name
Incidents	Business Unit Rollups	Business Unit Rollup Name
Incidents	Business Unit Rollups	Level 1
Incidents	Business Unit Rollups	Level 2
Incidents	Business Unit Rollups	Level 3
Incidents	Business Unit Rollups	Level 4
Incidents	Business Unit Rollups	Rollup Level
Incidents	Involved Items	Disposition
Incidents	Involved Items	Incident Number
Incidents	Involved Items	Loss Type
Incidents	Involved Organizations	Incident Number
Incidents	Involved Organizations	Involvement Type
Incidents	Involved Organizations	Notified By
Incidents	Involved Organizations	Organization Name
Incidents	Involved Persons	First Name
Incidents	Involved Persons	Incident Number
Incidents	Involved Persons	Involvement Type
Incidents	Involved Persons	Last Name
Incidents	Involved Vehicles	License Plate
Incidents	Involved Vehicles	Vehicle Involvement Type
Incidents	Involved Vehicles	Vehicle Year
Incidents	Narratives	Author
Incidents	Narratives	Narrative From
Incidents	Narratives	Narrative Type
Incidents	Narratives	Plain Text
Incidents	Incident > Assignments	Assigned By Person
Incidents	Incident > Assignments	Assigned To Person
Incidents	Incident > Assignments	Assignment Type
Incidents	Incident > Assignments	Message/Task
Incidents	Incident > Investigation > Evidence Log	Disposition
Incidents	Incident > Investigation > Evidence Log	Evidence Status
Incidents	Incident > Investigation > Evidence Log	Evidence/Property Name
Incidents	Incident > Investigation > Evidence Log	Evidence/Property Tag
Incidents	Incident > Investigation > Evidence Log	Evidence/Property Type
Incidents	Incident > Investigation > Evidence Log	Incident ID
Incidents	Incident > Investigation > Evidence Log	Notes
Incidents	Incident > Investigation > Evidence Log	Owner Name Organization

Section	Sub-Section(s)	Field
Incidents	Incident > Investigation > Evidence Log	Owner Name Person
Incidents	Incident > Investigation > Evidence Log	Person In Possession
Incidents	Incident > Investigation > Evidence Log	Secured/Storage Location
Incidents	Incident > Investigation > Evidence Log	Seized By Person
Incidents	Incident > Investigation > Evidence Log	Seized From Person
Incidents	Evidence Log > Status	Disposition
Incidents	Evidence Log > Status	Evidence/Property Tag
Incidents	Evidence Log > Status	Reason for Status Change
Incidents	Evidence Log > Status	Status Changed By Person
Incidents	Evidence Log > Status	Storage Location
Incidents	IncidentInvestigationInterviewHistory	ChangedByPersonDescription
Incidents	IncidentInvestigationInterviewHistory	Reason
Incidents	Investigation > Interviews	Incident ID
Incidents	Investigation > Interviews	Location of Interview
Incidents	Investigation > Interviews	Subject of Interview
Incidents	Investigation > Interviews	Subject's Involvement Type
Incidents	Investigation > Interviews	Witness
Incidents	Investigation > Interviews	Word File
Incidents	Incident > Investigation > Log	Expense Type
Incidents	Incident > Investigation > Log	Incident ID
Incidents	Incident > Investigation > Log	Log Notes
Incidents	Incident > Investigation > Log	Task Done By Person
Incidents	Incident > Investigation > Log	Task Type
Incidents	Incident > Investigation > Summaries	Word File
Incidents	Incident > Investigation > Summaries	Author
Incidents	Incident > Investigation > Summaries	Incident
Incidents	Incident > Investigation > Summaries	Plain Text
Incidents	Incident > Investigation > Summaries	Summary Type
Incidents	IncidentInvestigationSummaryHistory	ChangedByPersonDescription
Incidents	IncidentInvestigationSummaryHistory	Reason
Incidents	Incident > Investigators	Comments
Incidents	Incident > Investigators	Incident ID
Incidents	Incident > Investigators	Investigator
Incidents	Incident > Investigators	Investigator Type
Incidents	Incident > Items	Category/Type
Incidents	Incident > Items	Disposition
Incidents	Incident > Items	Item Name
Incidents	Incident > Items	Item Value
Incidents	Incident > Items	Linked Item
Incidents	Incident > Items	Make/Model
Incidents	Incident > Items	Notes

Section	Sub-Section(s)	Field
Incidents	Incident > Items	Organization Owned By
Incidents	Incident > Items	Person Owned By
Incidents	Incident > Items	Serial Number
Incidents	IncidentNarrativeHistory	PersonDescription
Incidents	IncidentNarrativeHistory	Reason
Incidents	Incident > Narratives	Author
Incidents	Incident > Narratives	IncidentNumber
Incidents	Incident > Narratives	Narrative
Incidents	Incident > Narratives	Narrative Type
Incidents	Incident > Narratives	Plain Text
Incidents	Incident > Organization > Requests	Request Assigned To Person
Incidents	Incident > Organization > Requests	Notes
Incidents	Incident > Organization > Requests	Tracking Number
Incidents	Incident > Organization > Requests	Request Type
Incidents	Incident > Organization > Responses	Notified By Person
Incidents	Incident > Organization > Responses	Responding Person
Incidents	Incident > Organization > Responses	Response Notes
Incidents	Incident > Organizations	Comments
Incidents	Incident > Organizations	Contact First Name
Incidents	Incident > Organizations	Contact Last Name
Incidents	Incident > Organizations	Contact Middle Initial
Incidents	Incident > Organizations	Contact Person
Incidents	Incident > Organizations	Contact Phone
Incidents	Incident > Organizations	Involvement Type
Incidents	Incident > Organizations	Linked Organization
Incidents	Incident > Organizations	Notified By
Incidents	Incident > Organizations	Organization Name
Incidents	Incident > Organizations	Organization Number
Incidents	Incident > Organizations	Organization Type
Incidents	Incident > Organizations	Organization Webpage URL
Incidents	Incident > Organizations	Reference Number
Incidents	Incident > Owner > History	Comments
Incidents	Incident > Owner > History	Owner Person
Incidents	Incident > Owner > History	Owner Added Date
Incidents	Incident > Person > Clothing	Clothing Type
Incidents	Incident > Person > Clothing	Color
Incidents	Incident > Person > Clothing	Description
Incidents	Incident > Person > Flags	Severity Level
Incidents	Incident > Person > Injuries	Description
Incidents	Incident > Person > Injuries	Injury Cause
Incidents	Incident > Person > Injuries	Severity

Section	Sub-Section(s)	Field
Incidents	Incident > Persons	Designation(s)
Incidents	Incident > Persons	Employee Number
Incidents	Incident > Persons	Eye Color
Incidents	Incident > Persons	First Name
Incidents	Incident > Persons	Flag Notes
Incidents	Incident > Persons	Gender
Incidents	Incident > Persons	Hair Color
Incidents	Incident > Persons	Initial
Incidents	Incident > Persons	Involvement Type
Incidents	Incident > Persons	Last Name
Incidents	Incident > Persons	Linked Person
Incidents	Incident > Persons	Marital Status
Incidents	Incident > Persons	Notes
Incidents	Incident > Persons	Reviewed By Person
Incidents	Incident > Persons	Title
Incidents	Incident > Reviews	Comments
Incidents	Incident > Reviews	Reviewed By Person
Incidents	Incident > Reviews	Review Type
Incidents	Incidents	Access Level
Incidents	Incidents	AttachmentCount
Incidents	Incidents	Corrective Action Summary
Incidents	Incidents	Disposition
Incidents	Incidents	Division Reported To
Incidents	Incidents	e-Incident Number
Incidents	Incidents	File Number
Incidents	Incidents	Flag Notes
Incidents	Incidents	Follow-up Required
Incidents	Incidents	Incident Duration
Incidents	Incidents	Incident Number
Incidents	Incidents	Investigation Comments
Incidents	Incidents	Investigation Duration
Incidents	Incidents	Police File Number
Incidents	Incidents	Policy Affected
Incidents	Incidents	Policy Name:
Incidents	Incidents	Primary Cause
Incidents	Incidents	Reported to Division
Incidents	Incidents	Reported to Police
Incidents	Incidents	Reported to Supervisor
Incidents	Incidents	Secondary Cause
Incidents	Incidents	Status
Incidents	Incidents	Summary

Section	Sub-Section(s)	Field
Incidents	Incident > Vehicles	Color
Incidents	Incident > Vehicles	Comments
Incidents	Incident > Vehicles	Disposition
Incidents	Incident > Vehicles	Driver Identified
Incidents	Incident > Vehicles	Incident ID
Incidents	Incident > Vehicles	Involvement Type
Incidents	Incident > Vehicles	License Plate
Incidents	Incident > Vehicles	Linked Vehicle
Incidents	Incident > Vehicles	Make/Model
Incidents	Incident > Vehicles	Plate Registered In
Incidents	Incident > Vehicles	Style
Incidents	Incident > Vehicles	Vehicle Driver
Incidents	Incident > Vehicles	VIN
Incidents	Incident > Vehicles	Year
Incidents	Link > Incidents	Link Type
Incidents	Link > Incidents	Linked From Incident
Incidents	Link > Incidents	Linked To Incident
Incidents	Link > Incidents	Notes
Incidents	Link Incident To Case	Case Number
Incidents	Link Incident To Case	Link Incident To Case
Incidents	Link Incident To Case	Link Type
Incidents	Link Incident To Case	Notes
Incidents	Link Incident To Case > Detail	Building
Incidents	Link Incident To Case > Detail	Category
Incidents	Link Incident To Case > Detail	Class
Incidents	Link Incident To Case > Detail	Incident Status
Incidents	Link Incident To Case > Detail	Link Incident To Case
Incidents	Link Incident To Case > Detail	Link Type
Incidents	Link Incident To Case > Detail	Site
Incidents	Link Incident To Case > Detail	Summary
Incidents	Link Incident To Incident > Detail	Building
Incidents	Link Incident To Incident > Detail	Category
Incidents	Link Incident To Incident > Detail	Class
Incidents	Link Incident To Incident > Detail	Incident Status
Incidents	Link Incident To Incident > Detail	Link Incident Number
Incidents	Link Incident To Incident > Detail	Site
Incidents	Link Incident To Incident > Detail	Summary
Incidents	Site Rollups	Address 2
Incidents	Site Rollups	Section
Items	Item > Class Rollups	Item Category
Items	Item > Class Rollups	Item Class Name

Section	Sub-Section(s)	Field
Items	Item > Class Rollups	Item Class Rollup Name
Items	Item > Class Rollups	Item Type
Items	Item > Class Rollups	Level3
Items	Item > Class Rollups	Level4
Items	Item > Class Rollups	Rollup Level
Items	Item Make Model Rollups	Item Make
Items	Item Make Model Rollups	Item Make Model Name
Items	Item Make Model Rollups	Item Make Model Rollup Name
Items	Item Make Model Rollups	Item Model
Items	Item Make Model Rollups	Level3
Items	Item Make Model Rollups	Level4
Items	Item Make Model Rollups	Rollup Level
Items	Items	Access Level
Items	Items	Item Class Rollup
Items	Items	Item Make Model Rollup
Items	Items	Item Name
Items	Items	Notes
Items	Items	Owner Identified
Items	Items	Owner Name Organization
Items	Items	Owner Name Person
Items	Items	Serial Number
Organizations	Link Persons	Linked To Person
Organizations	Link Persons	Link Type
Organizations	Link Person To Organization	Link Type
Organizations	Link Person To Organization	Notes
Organizations	Link Person To Organization	Organization
Organizations	Link Person To Organization	Person
Organizations	Link Vehicles	Notes
Organizations	Organization > Addresses	Address 1
Organizations	Organization > Addresses	Address 2
Organizations	Organization > Addresses	Geographic Rollup
Organizations	Organization > Addresses	Organization ID
Organizations	Organization > Addresses	Type
Organizations	Organization > Addresses	Zip/Postal Code
Organizations	Organization > Email Addresses	Email Address
Organizations	Organization > Email Addresses	Organization ID
Organizations	Organization > Email Addresses	Type
Organizations	Organization > Phone Numbers	Organization ID
Organizations	Organization > Phone Numbers	Phone Number
Organizations	Organization > Phone Numbers	Type
Organizations	Organizations	Access Level

Section	Sub-Section(s)	Field
Organizations	Organizations	Notes
Organizations	Organizations	Organization Name
Organizations	Organizations	Organization Number
Organizations	Organizations	Organization Type
Organizations	Organizations	Organization Webpage URL
Organizations	Organizational Rollups	Org Level 1
Organizations	Organizational Rollups	Org Level 2
Organizations	Organizational Rollups	Org Level 3
Organizations	Organizational Rollups	Org Level 4
Organizations	Organizational Rollups	Org Rollup Name
Persons	Link Organizations	Link Type
Persons	Link Organizations	Linked From Organization
Persons	Link Organizations	Linked To Organization
Persons	Link Vehicles	Link Type
Persons	Link Vehicles	Linked From Vehicle
Persons	Link Vehicles	Linked To Vehicle
Persons	Person > Addresses	Address 1
Persons	Person > Addresses	Address 2
Persons	Person > Addresses	Address Type
Persons	Person > Addresses	Geographic Rollup
Persons	Person > Addresses	Zip/Postal Code
Persons	Person > Email Addresses	Email Address
Persons	Person > Email Addresses	Email Type
Persons	Unique Features	Description
Persons	Unique Features	Feature Type
Persons	Unique Features	Location
Persons	Person > Flag List	Flag Description
Persons	Person > Flag List	Letter Code
Persons	Person > Flags	Severity
Persons	Identification	Comments
Persons	Identification	Identification Number
Persons	Identification	Identification Type
Persons	Identification	Issued By
Persons	Person > Phone Number	Phone Number
Persons	Person > Phone Number	Phone Type
Persons	Persons	Access Level
Persons	Persons	Additional Information
Persons	Persons	Designation
Persons	Persons	Employee
Persons	Persons	Employee Number
Persons	Persons	Eye Color

Section	Sub-Section(s)	Field
Persons	Persons	First Name
Persons	Persons	Flag Notes
Persons	Persons	Gender
Persons	Persons	Hair Color
Persons	Persons	Initial
Persons	Persons	Last Name
Persons	Persons	Title
Persons	Person > Trespasses	Comments
Persons	Person > Trespasses	Site Rollup
Vehicles	Link > Organizations	Notes
Vehicles	Link Organization To Vehicle	Link Type
Vehicles	Link Organization To Vehicle	Notes
Vehicles	Link Organization To Vehicle	Organization
Vehicles	Link Organization To Vehicle	Vehicle
Vehicles	Link Persons	Linked From Person
Vehicles	Link Persons	Notes
Vehicles	Link Person To Vehicle	Link Type
Vehicles	Link Person To Vehicle	Notes
Vehicles	Link Person To Vehicle	Person
Vehicles	Link Person To Vehicle	Vehicle
Vehicles	Vehicle > Make Model Rollups	Make
Vehicles	Vehicle > Make Model Rollups	Model
Vehicles	Vehicle > Make Model Rollups	Rollup Level
Vehicles	Vehicle > Make Model Rollups	Rollup Name
Vehicles	Vehicle > Make Model Rollups	Vehicle Make Model Name
Vehicles	Vehicle > Make Model Rollups	Vehicle Make Model Rollups
Vehicles	Vehicles	Access Level
Vehicles	Vehicles	Branch
Vehicles	Vehicles	Color
Vehicles	Vehicles	Comments
Vehicles	Vehicles	Company Vehicle
Vehicles	Vehicles	Division
Vehicles	Vehicles	Geographic Rollup
Vehicles	Vehicles	License Plate
Vehicles	Vehicles	Photo
Vehicles	Vehicles	Style
Vehicles	Vehicles	Vehicle Make/Model
Vehicles	Vehicles	Vehicle Value
Vehicles	Vehicles	VIN
Vehicles	Vehicles	Year