

# **PERSPECTIVE.**

powered by **Resolver**

## Perspective Installation Guide

Version 5.11

5/29/2024

## **Perspective by Resolver Inc.™**

Version 5.11

Distributed 5/29/2024

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# System Requirements

The requirements below are for operating Perspective V.5.11, Dispatch, and Connect using a traditional LAN/WAN environment, with the web server running on a separate Microsoft IIS box.

**Note:** *Minimum system requirements mean you can run the application successfully but may not offer the best performance. Recommended requirements will offer a better experience.*

	Minimum System Requirements	Recommend System Requirements
<b>Client Machine</b>		
Processor Speed	<ul style="list-style-type: none"> <li>• 2 GHz Dual Core</li> </ul>	<ul style="list-style-type: none"> <li>• 2.5 GHz Dual Core</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• 2 GB</li> </ul>	<ul style="list-style-type: none"> <li>• 4 GB</li> </ul>
Operating System	<ul style="list-style-type: none"> <li>• Windows 8.1</li> <li>• Windows 10</li> </ul>	
.NET Framework	<ul style="list-style-type: none"> <li>• Version 4.8</li> </ul>	
Web Browser – Perspective	<ul style="list-style-type: none"> <li>• Edge</li> </ul>	
Web Browser – Web Portal	<ul style="list-style-type: none"> <li>• Edge</li> <li>• Google Chrome™</li> <li>• Safari® iOS 9+</li> <li>• Android™ Browser 4.2+</li> </ul>	
Web Browser - Connect	<ul style="list-style-type: none"> <li>• Google Chrome</li> </ul>	
Third-Party App	<ul style="list-style-type: none"> <li>• Adobe™ Reader 9.4.0+</li> <li>• Sun Java™ Runtime Environment 7 U71 or 8 U25 (Only applies if you are using Visual Analysis)</li> </ul>	
Mobile iOS App	<ul style="list-style-type: none"> <li>• iOS 10</li> <li>• iOS 11</li> </ul>	
Officer Mobile	<ul style="list-style-type: none"> <li>• iOS 10</li> <li>• Android 8.0+</li> </ul>	

<b>Resolution</b>	1280x720, 1792 x 1344, 1920x1080, 1920x1440, 2560x1600, 2736x1824. DPI 100%, 125%, 200%, or 225%	
<b>Web Server Machine (On-Site)</b>		
<b>Disk Space</b>  A larger Perspective database may need more disk space for Workflow	<ul style="list-style-type: none"> <li>• 1 GB</li> </ul>	<ul style="list-style-type: none"> <li>• 2 GB</li> </ul>
<b>Processor Speed</b>	<ul style="list-style-type: none"> <li>• 2 GHz Dual Core</li> </ul>	<ul style="list-style-type: none"> <li>• 2.5 GHz Quad Core</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 8 GB</li> </ul>	<ul style="list-style-type: none"> <li>• 16 GB</li> </ul>
<b>Operating System</b>	<ul style="list-style-type: none"> <li>• Windows Server 2016</li> <li>• Windows Server 2019</li> <li>• IIS with WebSockets enabled (Only applies if you are using Dispatch)</li> <li>• Secure-Channel configured (HTTPS/SSL)</li> </ul>	
<b>.NET Framework</b>	<ul style="list-style-type: none"> <li>• Version 4.8 with HTTP and non-HTTP activation</li> <li>• .NET Core 1.0.4 or 1.1.1 - Windows Hosting (Only applies if you're using Connect)</li> </ul>	
<b>C++ Runtime Libraries</b>	<ul style="list-style-type: none"> <li>• C++ 2010 SP1 Runtime Libraries (x64) 10.40219</li> </ul>	
<b>Message Queue – Connect/Dispatch Service Clustering</b>	<ul style="list-style-type: none"> <li>• RabbitMQ™ Server 3.7.7+</li> </ul>	
<b>Inbound Ports</b>  For more information on these requirements, see the <a href="#">Inbound &amp; Outbound Ports</a> article	<ul style="list-style-type: none"> <li>• 443</li> </ul>	

<p><b>Outbound Ports</b></p> <p>For more information on these requirements, see the <a href="#">Inbound &amp; Outbound Ports</a> article</p>	<ul style="list-style-type: none"> <li>• 443</li> <li>• 2195</li> <li>• 2196</li> <li>• 5223</li> <li>• 5228</li> <li>• 5672</li> </ul>	
<p><b>Database Server Machine (On-Site)</b></p> <p>These requirements apply to systems with up to 25 users. Contact your Resolver Account Manager systems with 25+ users</p>		
<p><b>Disk Space</b></p>	<ul style="list-style-type: none"> <li>• 2 GB</li> </ul>	<ul style="list-style-type: none"> <li>• 20+ GB</li> </ul>
<p><b>Processor Speed</b></p>	<ul style="list-style-type: none"> <li>• 2 GHz Dual Core</li> </ul>	<ul style="list-style-type: none"> <li>• 64 – Bit Server Dual Core or Multi-Processors</li> </ul>
<p><b>Memory</b></p>	<ul style="list-style-type: none"> <li>• 2 GB</li> </ul>	<ul style="list-style-type: none"> <li>• 4+ GB</li> </ul>
<p><b>Database Server</b></p> <p>Only SQL Server Enterprise Edition is supported for indexing on audit tables</p>	<ul style="list-style-type: none"> <li>• SQL Server 2014 SP2</li> <li>• SQL Server 2016 SP1</li> <li>• SQL Server 2017</li> <li>• SQL Server 2019</li> <li>• All versions of SQL Server must have the Full-Text Search feature installed</li> </ul>	
<p><b>Reporting Service</b></p>	<ul style="list-style-type: none"> <li>• SQL Server 2014 Reporting Services</li> <li>• SQL Server 2016 Reporting Services</li> <li>• SQL Server 2017 Reporting Services</li> </ul>	

## Important Information

- Internet connectivity on the client machine is required for full functionality.
- The Perspective client is deployed as a ClickOnce application, launched from Edge. It has a zero-client footprint and doesn't require administrative rights to establish.
- Active Directory Services must be enabled on the Perspective Web Server if single sign-on authentication or add from Active Directory is used.
- Net.TCP binding on port 808 is required if you are 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 hosted by the database.

# 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** 5.10 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.



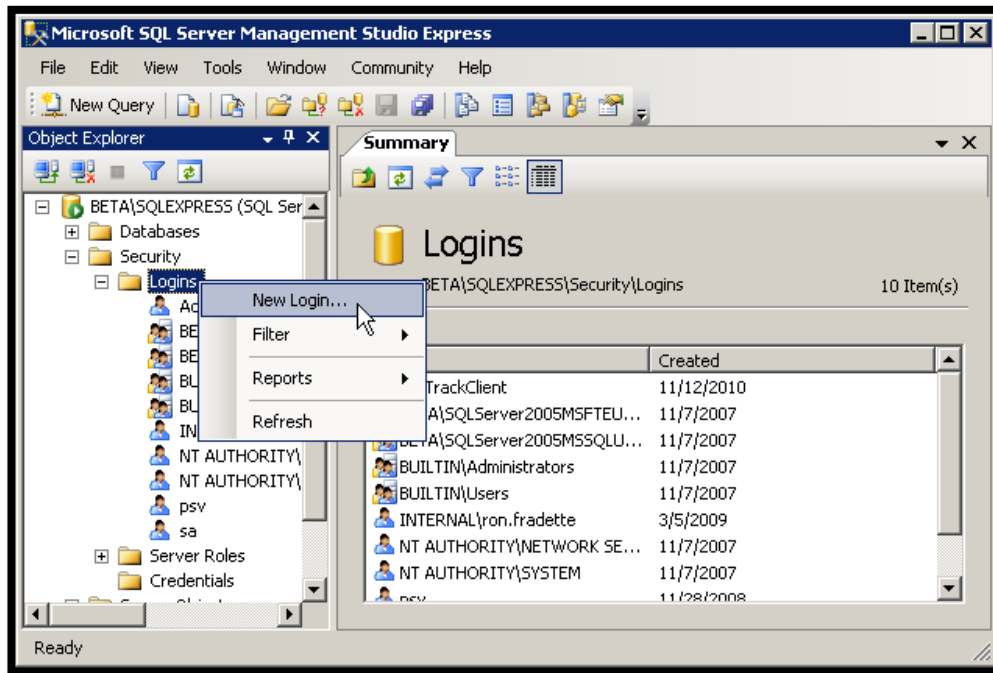
# Standard Installation

## SQL Database Server

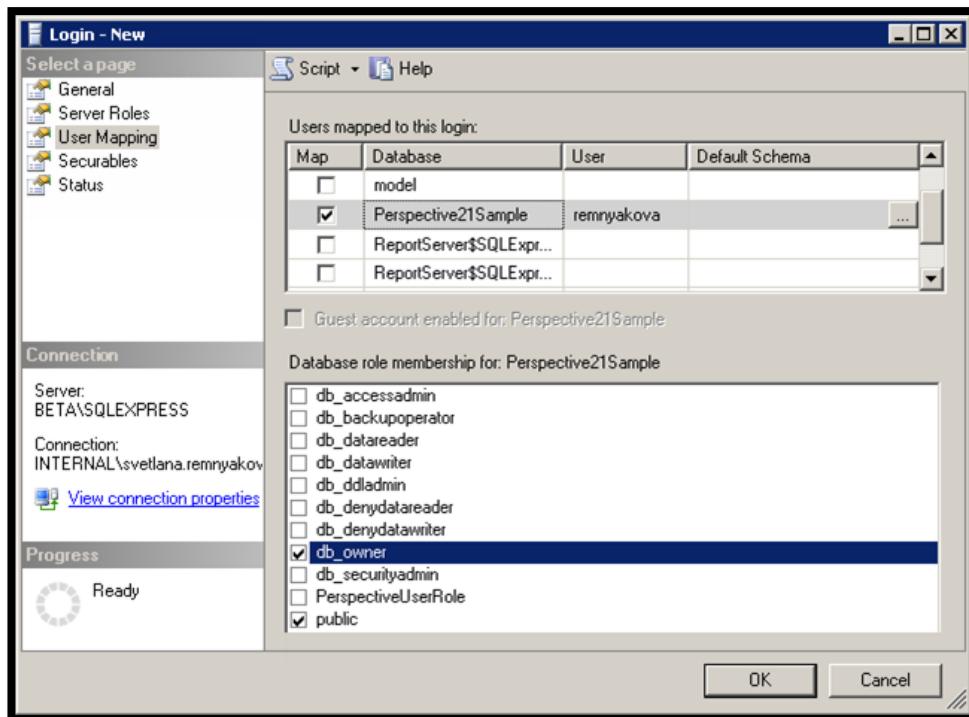
1. Ensure **Microsoft SQL Server 2012 SP3** or better has been installed.
2. Install the Perspective database:
  - a. Launch **Microsoft SQL Server Management Studio**.
  - b. Right-click **Databases** and select **Restore Database**.
  - c. Under **From Device**, click the **Browse (...)** button and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

- d. Click **OK**.
  - e. Check the **Restore** option.
  - f. Enter a database name in **To Database**.
  - g. Click **OK**.
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**.

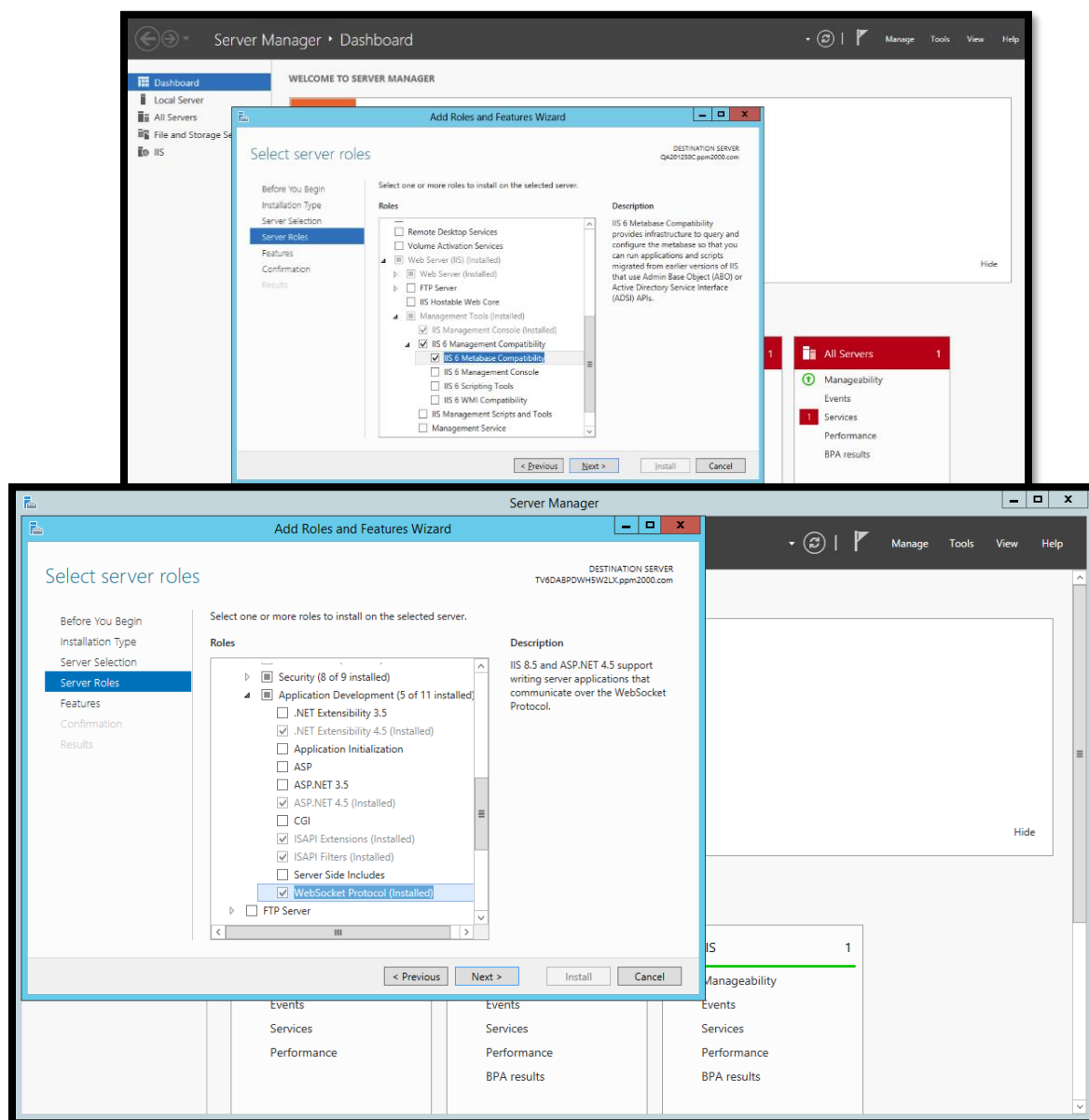


## Perspective Services (Application Server Setup)

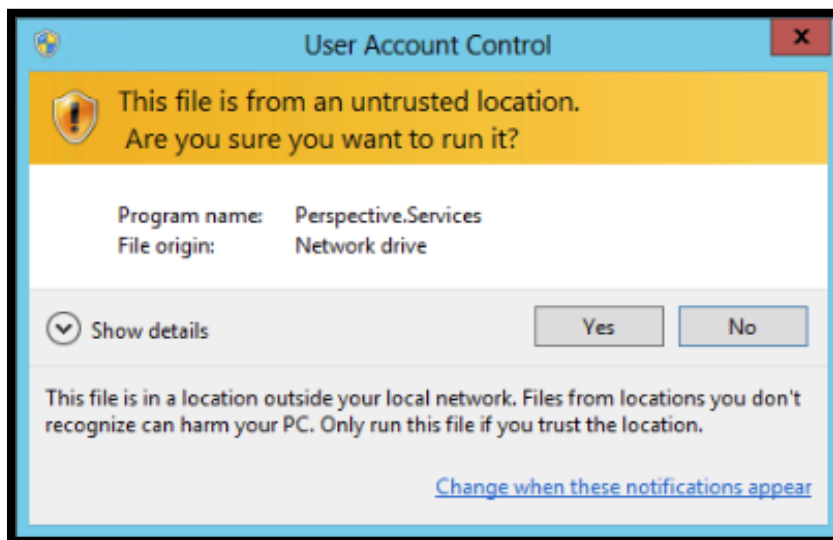
Completing the following steps will install **Perspective Services, Integration Services, Real Time Services, and Web Portal.**

Ensure that **.Net Framework 4.8, IIS 6 Metabase Compatibility, and WebSocket Protocol** are installed on the Application Server via **Server Manager**.

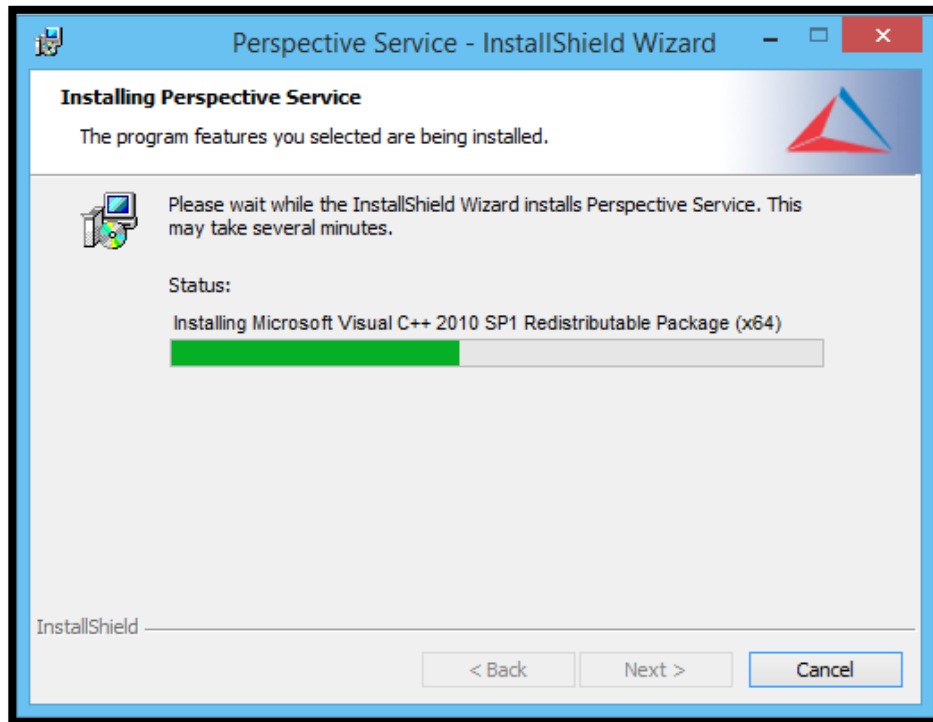
Ensure **Internet Information Services (IIS)** is installed, and that IIS has **WCF Activation** turned on.



1. Navigate to the filepath where your **Perspective\_Default.config** file is stored (by default, the file path is: **C:\inetpub\wwwroot\Perspective5.10\PerspectiveServices**) and make a copy of this file on to your desktop. This file contains lots of configuration information that is used within your Perspective configuration, that can be reused.
2. **Uninstall** the current versions of **Perspective.Services.exe** as well as **Perspective.ServiceManager.exe** found on the Application Server.
3. From the **Perspective 5.10** file, navigate to the **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. Review and accept the **Terms and Conditions**, and click **Next**.
- d. Select where you would like the application to be installed and click **Next**.
- e. Click **Install** to begin the installation.
- 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 Conditions**, and click **Install**.
- h. When the installation is complete, click **Finish**.
- i. **Perspective Services** installation will continue.
- j. Click **Finish**.

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

- 4. From the same folder repeat Step 2 for **Perspective.ServiceManager.exe**. To complete the setup, follow the install wizard's guidelines.

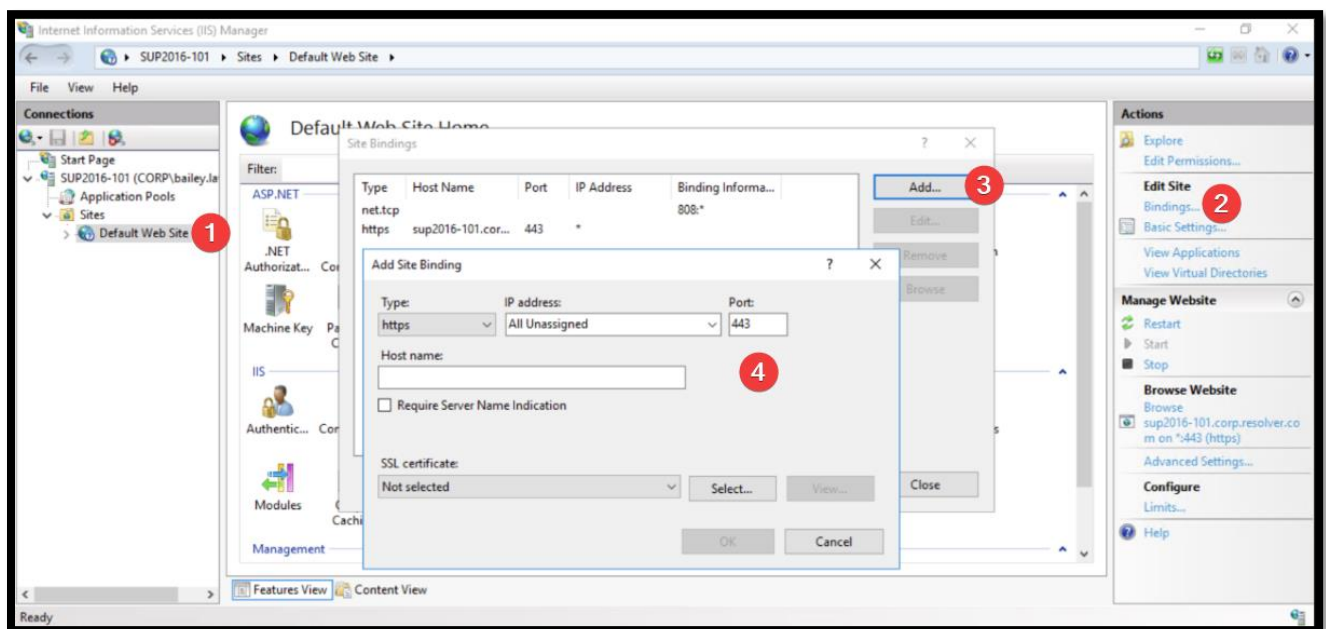
[Click here for a video demonstration of these steps.](#)

## Configure SSL Certificate Within IIS

Note: This step is only meant if you are utilizing **HTTPS**.

1. Navigate to the **Default Web Site** within IIS.
2. Select **Bindings...**
3. Select **Add...**
4. Fill out each of the fields and select your SSL certificate.

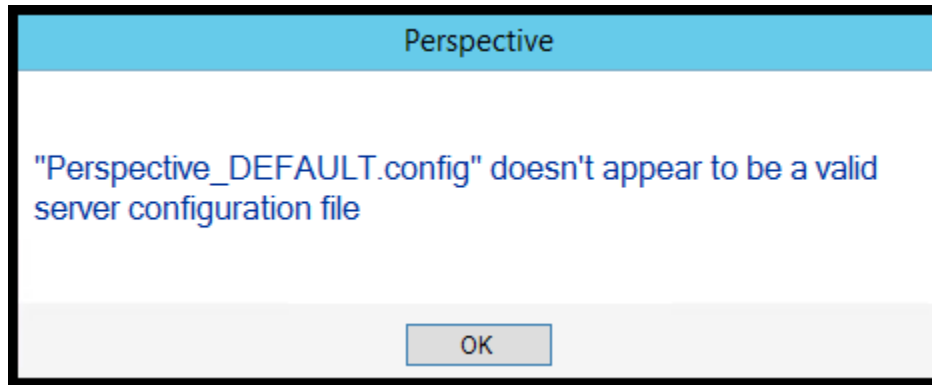
Note: For more information about configuring SSL certificates, please refer to the [Microsoft SSL website](#).



[Click here for a video demonstration of these steps.](#)

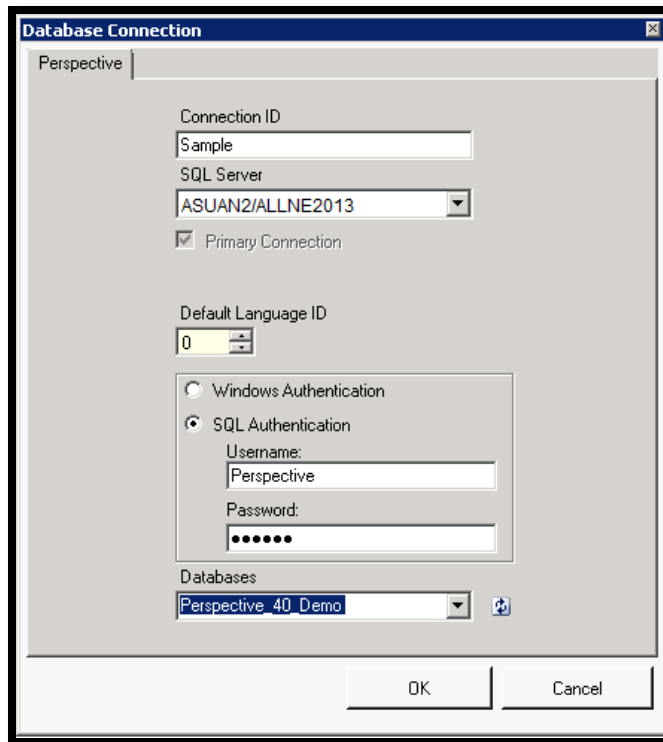
## Configure Perspective Service Manager

1. Launch **Perspective Service Manager** from your desktop as an Administrator.
2. You may be prompted with the following notification (If you are not prompted with this notification, proceed to step 5):



3. Click **OK**.
4. Navigate to the file path where the **Perspective\_Default.config** file would be (the default file path is: `C:\inetpub\wwwroot\Perspective5.10\PerspectiveServices`) and open the file.

- You will be prompted to input the database connection information.



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

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

- In the **SQL Server** lookup list, select your SQL Server or type the name of your server in the text box.
- Leave **Default Language ID** set to **0**, unless instructed otherwise by Resolver.
- Ensure **SQL Authentication** is selected and enter the SQL **Username** and **Password** that has db\_owner permissions you created when installing the database.
- Select your Perspective database from the **Databases** lookup list.
- Click **OK** to save.
- In the **Product Validation** tab, enter your **Company Name** and **Master Key**. If you do not know this information, you can reach out to [Resolver Support](#) for this information.

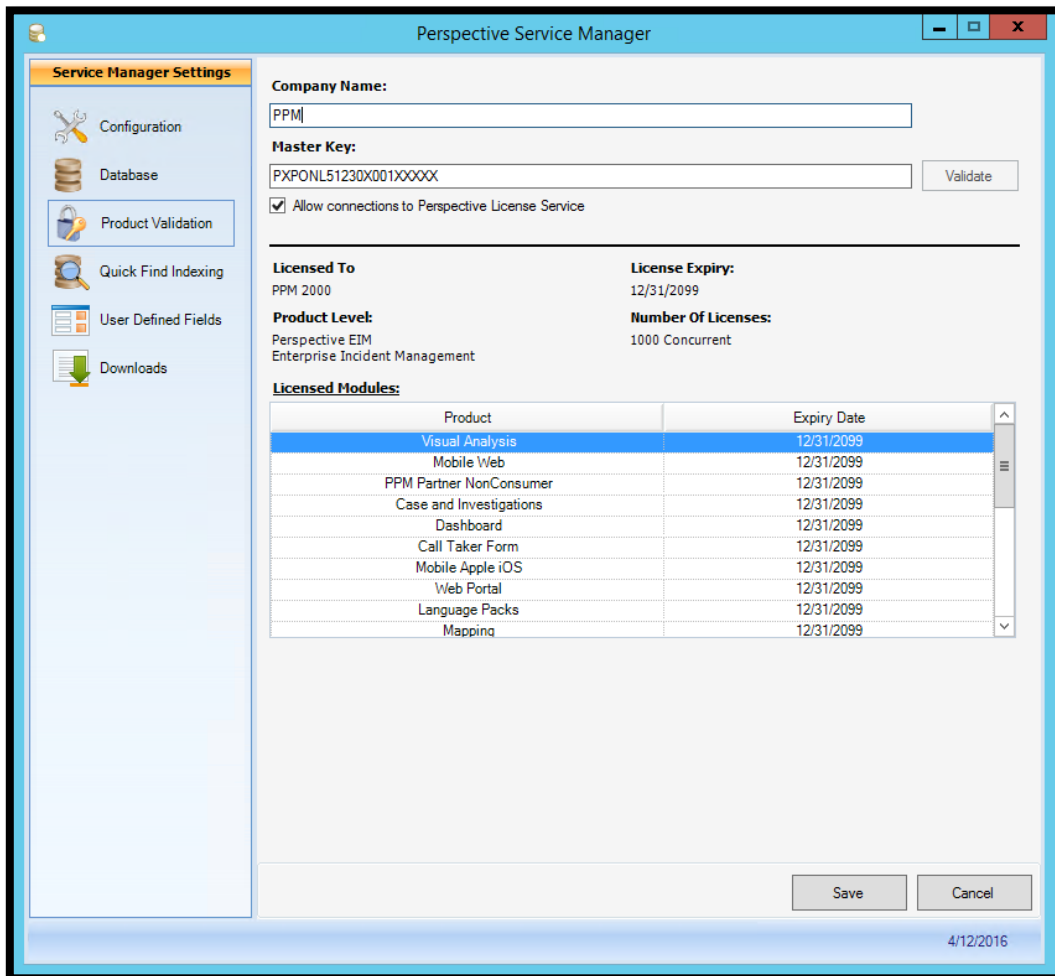
*Note: The Master Key is case sensitive.*



- Click the **Validate** button, if you have input the correct information, you will see your license details.

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

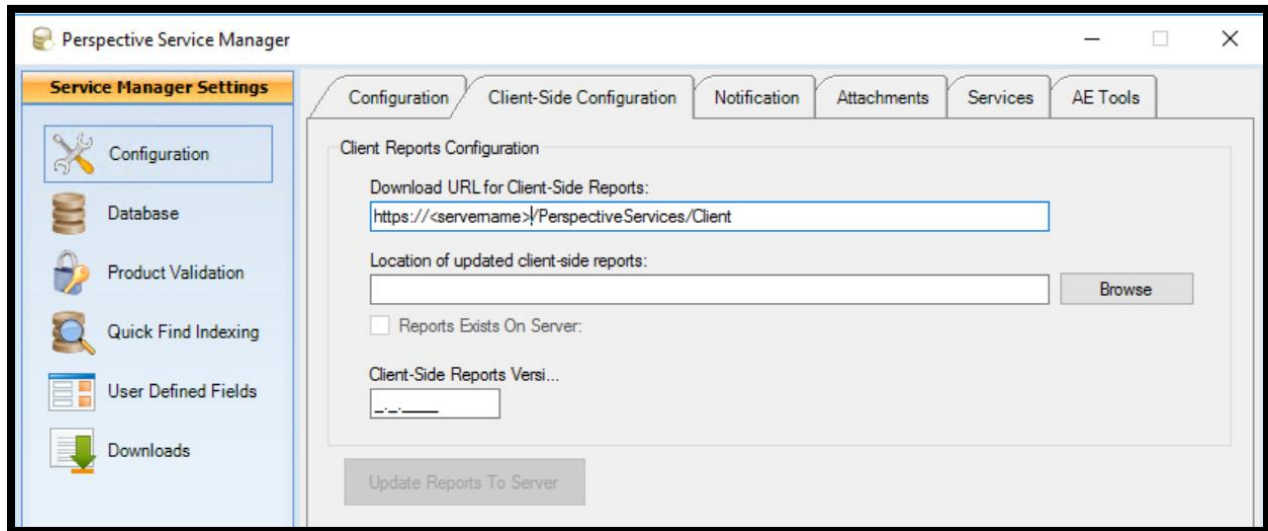
Unchecking this box means a license file must be imported when you click the **Validate** button. If you do not have the file, you can reach out to [Resolver Support](#) for this information.



- Select the **Configuration** component from the Perspective Service Manager menu.
- To encrypt the Perspective\_Default.config file, check the **Encrypt Configuration?** box.
- Open the **Client-Side Configuration** tab.

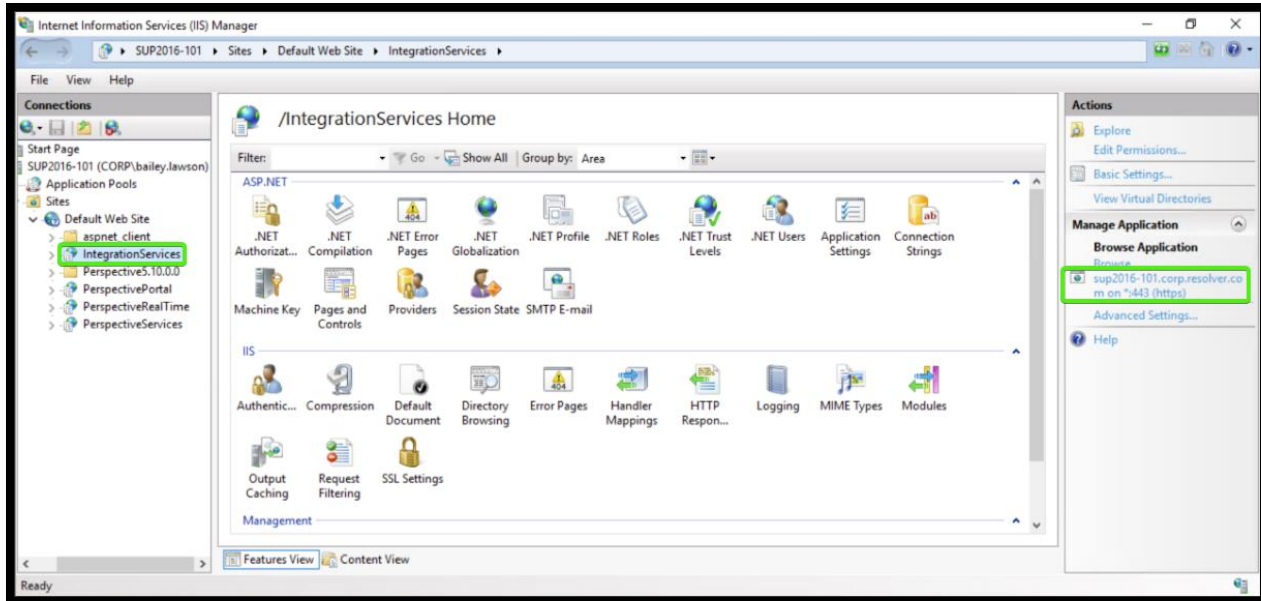
17. Enter the **Download URL for Client-Side Reports**, this is needed for the client reports configuration files to update automatically (i.e., `https://<servername>/perspectiveservices/client`).

Note: Make sure that `/client` is appended at the end of the URL

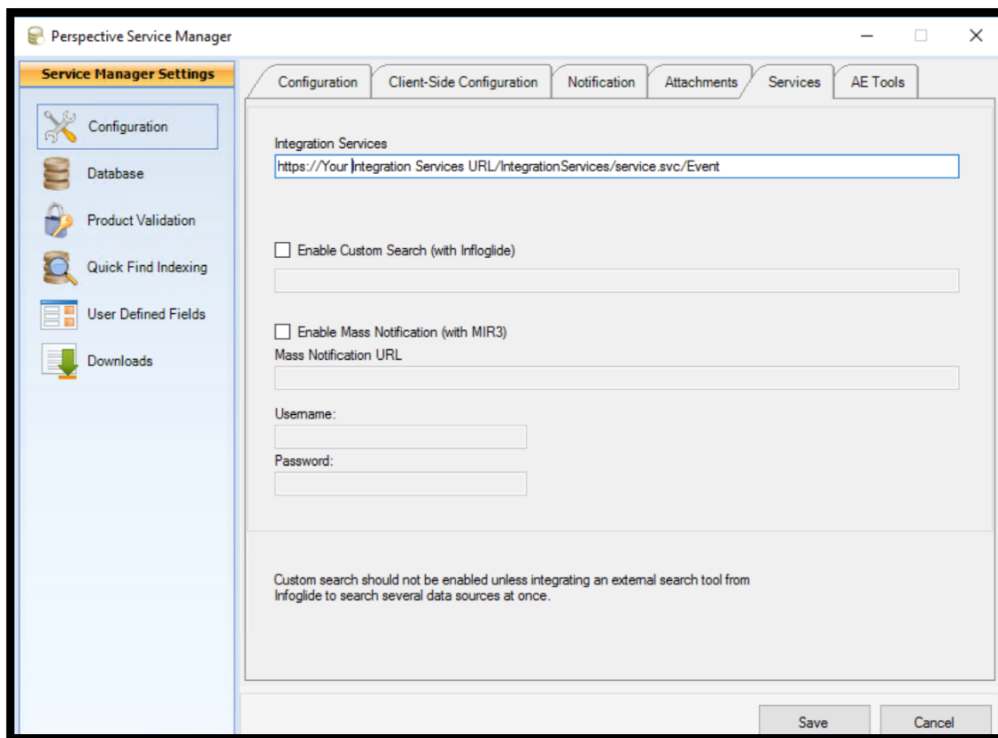


18. Click **Save**.
19. To enable event trigger in Integration Services, select the **Configuration** component from the Perspective Service Manager menu and open the **Services** tab.
20. Enter the URL bound to HTTPS in the **Integration Services** field.

- a. You can find the Integration Services URL by browsing to the **IntegrationServices** section in the **Default Web Site** section within IIS.



- b. Make sure to append “service.svc/Event” to the end of the URL.



21. Click **Save** and then close out of **Perspective Service Manager**.
22. Restart **IIS**.
23. Select the **Configuration** component from the **Perspective Service Manager** menu.
24. To encrypt the **Perspective\_Default.config** file, check the **Encrypt Configuration?** Box.

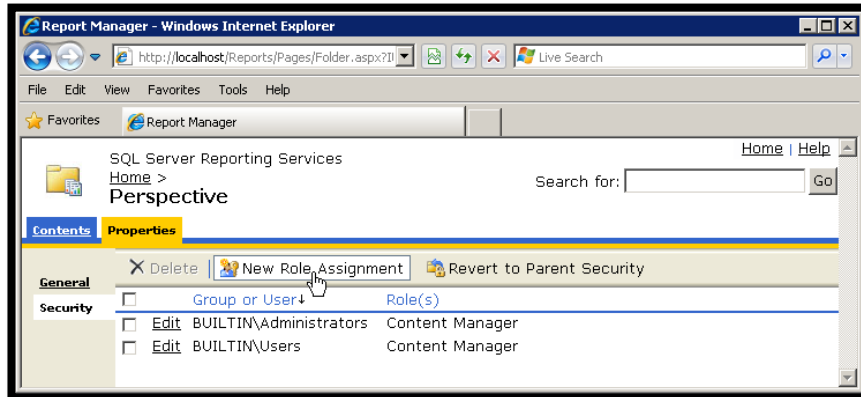
[Click here for a video demonstration of these steps.](#)

## SQL Reporting Services Setup

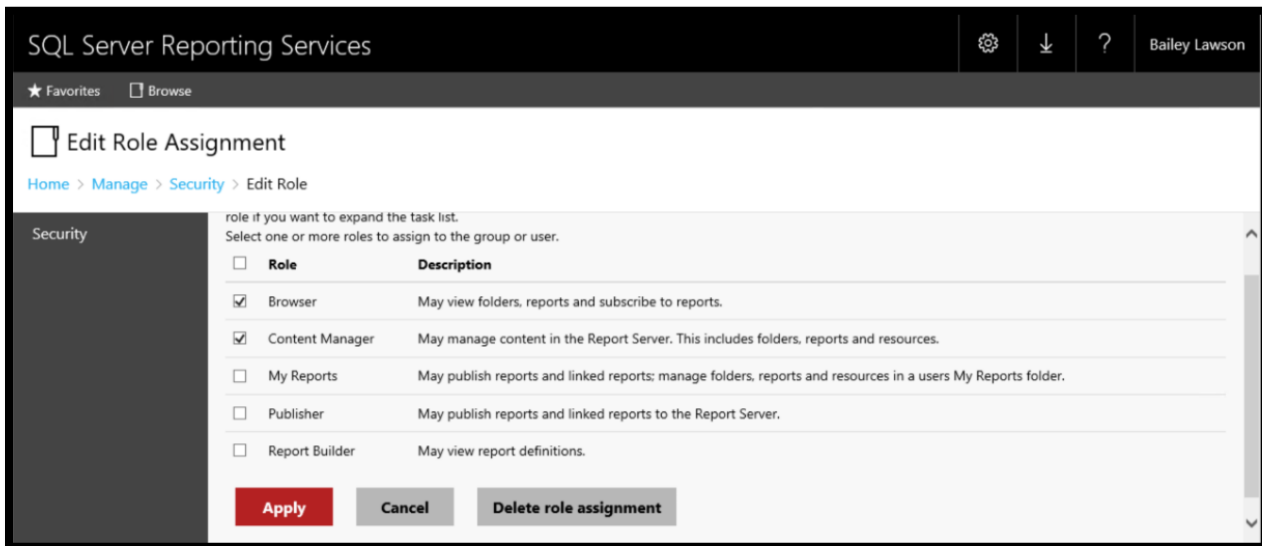
1. Ensure that **SQL Server Reporting Services** is installed on the database server.
2. From the Perspective install directory, copy the **Reports Setup** folder and all subfolders to a temporary directory on the Reporting Services computer (this is usually the database server).
3. Edit the **PublishServerReports.bat** 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\_ID>.
  - Edit **databasePassword** to <sql\_User\_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](#).
  - a. Run the **Command Prompt** as Administrator
  - b. Change the directory to the file path of the **Reports Setup** file path (this is the same file path the **PublishServerReports.bat** is saved in)
  - c. Press **Enter**.
  - d. Select and run the **PublishServerReports.bat** file.

*Note: If you're using **Windows Authentication**, additional configuration of the **Reports** data source may be required.*

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 **Content Manager** and **Browser** roles and click **OK**.

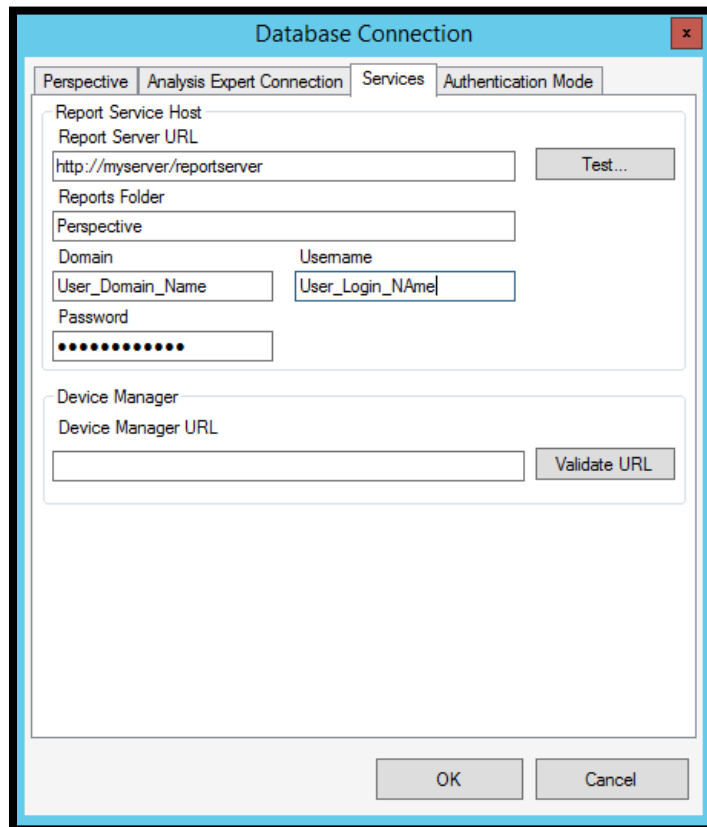


6. Open the **Database** component within **Perspective Service Manager** (on the application server), select your database name, and click the **Edit** button.
7. Open the **Services** tab and type the report server URL in the **Report Server URL** box.

8. Enter the name of your **Reports Folder**.
9. Proceed to the Report Service Host section below. Enter the **Domain**, **Username** and **Password** that were granted browser rights when setting up the server-side reports.
10. 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.

*Note: The account you configure here must also be a local user on the database server. To edit, add, or review your local users search for and open **lusrmgr.msc** within the **task bar search** feature to manage local users on the database server.*

11. Click **OK**.



The screenshot shows a 'Database Connection' dialog box with the following fields and buttons:

- Report Service Host**
  - Report Server URL:    - Reports Folder:
  - Domain:
  - Username:
  - Password:
- Device Manager**
  - Device Manager URL:
- Buttons:**

[Click here for a video demonstration of these steps.](#)

## Quick Find Indexing

With Perspective's **Quick Find Indexing** 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

1. To set up indexing on your database, select the **Quick Find Indexing** component in the **Perspective Service Manager** menu.
2. 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\Indexes\Default\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.

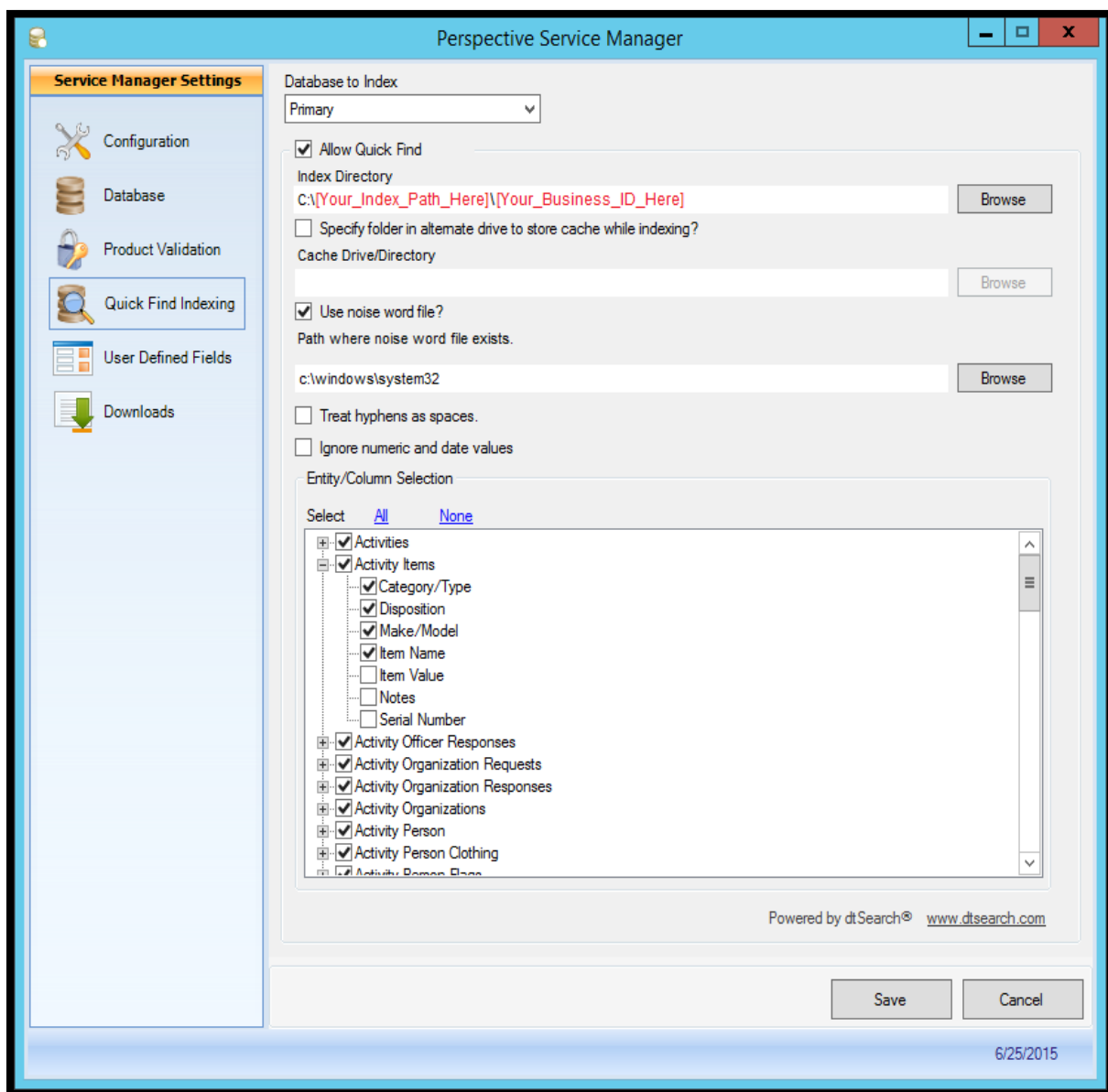
*Note: Perspective does not provide a Noise.dat file.*

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: 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** as Administrator and navigate to the **Service Manager** directory as follows:

```
cd "C:\Program Files\Resolver Inc\Perspective\5.10\ServiceManager"
```

Copy and paste one of the commands to run from steps 11-14 below:

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

```
Perspective.Indexer.exe  
/c="C:\[PerspectiveServicesPath]\Perspective5.10\PerspectiveServices\Perspective  
_Default.config"
```

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

```
Perspective.Indexer.exe  
/c="C:\[PerspectiveServicesPath]\Perspective5.10\PerspectiveServices\Perspective  
_Default.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]\Perspective5.10\PerspectiveServices\Perspective  
_Default.config" /i
```

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

```
Perspective.Indexer.exe  
/c="C:\[PerspectiveServicesPath]\Perspective5.10\PerspectiveServices\Perspective  
_Default.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 ?**

17. Once you have completed this, we recommend setting up an Event for the indexer to run daily at a time where there is not much activity in the system (e.g. 3am). To do this, please follow the steps in this [support article](#).

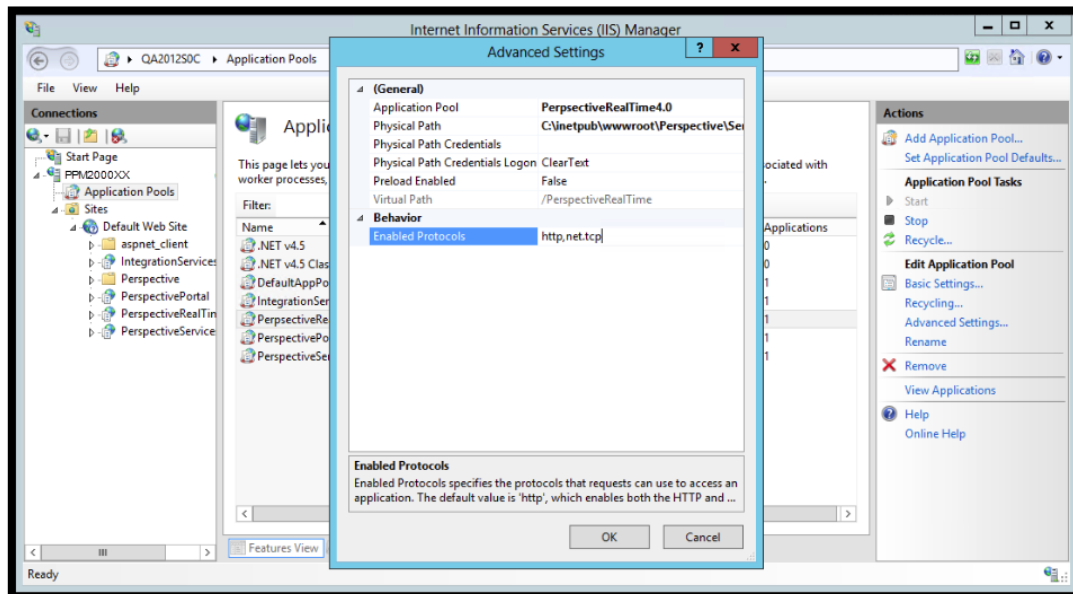
[Click here for a video demonstration of these steps.](#)

## Dispatch Log Configuration

If you're installing an instance of Perspective that includes **DispatchLog**, additional configuration is required.

1. Navigate to IIS.
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**.

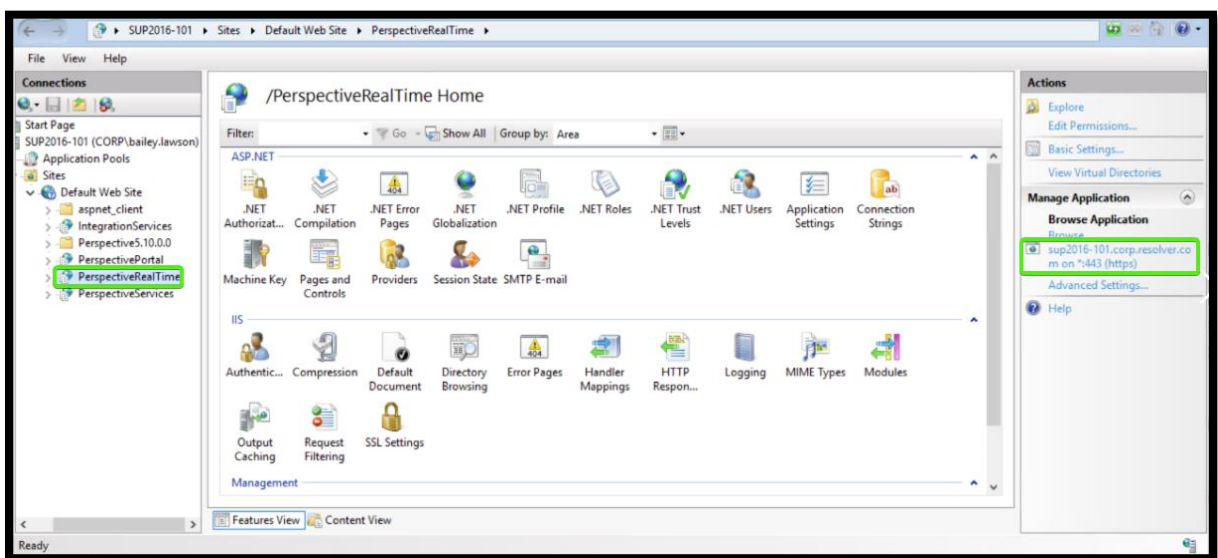
*Note: Port 808 is used by default.*



5. Navigate to and open the **Web.config** file for the **PerspectivePortal** (by default, the file path is: **C:\inetpub\wwwroot\Perspective5.10\PerspectivePortal**). Search for the **PerspectiveRealTime** URL and replace the localhost with a fully qualified server name.

```
30 <add key="IntegrationServicesURL" value="http://localhost/IntegrationService/Service.svc" />
```

- a. You can find the **PerspectiveRealTime** URL by browsing to the **PerspectiveRealTime** section in the **Default Web Site** section within IIS.



6. To specify the valid SSL certificate for **RealTimeService**:
  - a. Open the **Web.config** file in the **ServiceRealTime** (by default, the file path is: **C:\inetpub\wwwroot\Perspective5.10\PerspectivePortal**).
  - b. Add the `<serviceCredentials>` and `<serviceCertificate>` tags to the file, adding the name of the certificate between the `<serviceCertificate>` tags. For example:

```
<serviceCredentials>
  <serviceCertificate findValue="localhost" x509FindType="FindBySubjectName" />
</serviceCredentials>
```

Note: The specified parameters must uniquely identify the certificate. See the [X509FindType Enum](#) article on the Microsoft Documentation site for a list of acceptable fields. In addition, the

application pool identity that is hosting the **ServiceRealTime** must have access to the certificate as well as the private key.

Note: If using the certificate's thumbprint, you must manually type it in as copying and pasting it will cause an error.

- c. For wildcard certificates, you must add the `<PerspectiveRealTimeUsesWildcard>` tags to your **Perspective\_Default.Config** file (by default, the file path is: **C:\inetpub\wwwroot\Perspective5.10\PerspectivePortal**) and set the value to **true**. The default value of this element is **false** unless otherwise specified.
- d. **Save** and close the file.

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

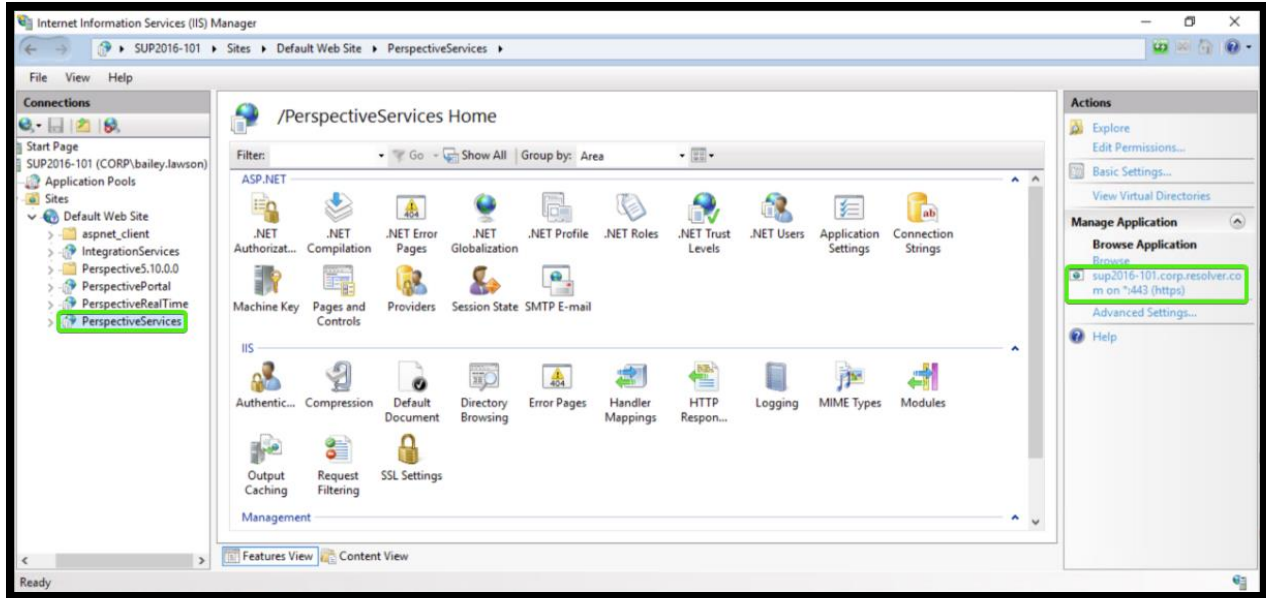
[Click here for a video demonstration of these steps.](#)

## Client Machines

Follow the steps below to initialize and access the Perspective application:

1. Ensure **Microsoft .NET 4.8 Framework** is installed on the client machine.
2. Browse to the Perspective Services URL: `https://<servername>/PerspectiveServices`.

- You can find the **PerspectiveServices** URL by browsing to the **PerspectiveServices** section in the **Default Web Site** section within IIS.



3. Click the **Perspective** icon.



4. Click **Run**.
5. If you're using the **MSI Package installer**, follow the steps below;

- i. Browse to the **PerspectiveServices** URL (e.g.  
`https://<servername>/PerspectiveServices/?opt=0`)
- 6) If you're using **?opt=1**, only the ClickOnce installer will be displayed.
- 7) 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**, please reach out to [Resolver Support](#).

*Note: Following the configuration of the Application 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.*

6. After Perspective downloads and installs, you might be prompted to enter a URL. Enter your **PerspectiveServices** URL which is: **`https://<servername>/PerspectiveServices`**.

Now you should be able to test the default Perspective logon. From this point onward, users must navigate to the **PerspectiveServices** URL to launch the Perspective application, you can login using your existing credentials or if you don't have any, you can use the default master credentials below:

*Note: It is recommended that you change the password of the Master Login to something only the appropriate users who will access it will know.*

**Perspective Master Login:**

**Username:** Admin  
**Password:** Security

## 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 the **Web Portal**:

1. **Open** a new instance of **Microsoft Edge**.
2. Click **Portal** on the launch page or navigate to your **Portal Services** URL which is:  
**https://<servername>/PerspectivePortal**.

Note: Administrators will be required to log in to set up the **Web Portal**. Refer to the [Perspective Web Portal User Guide](#) for additional information.

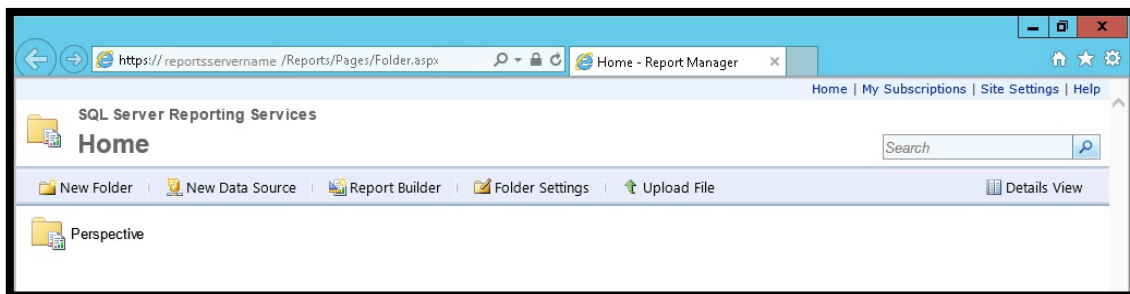
# Testing Perspective Implementation

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 username and password.
5. Once you have logged on successfully, click on the **Reports** button in the navigation pane 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** section listed. If you receive an error message, see the [Troubleshooting Perspective & SQL Reporting Services](#) article for more information.

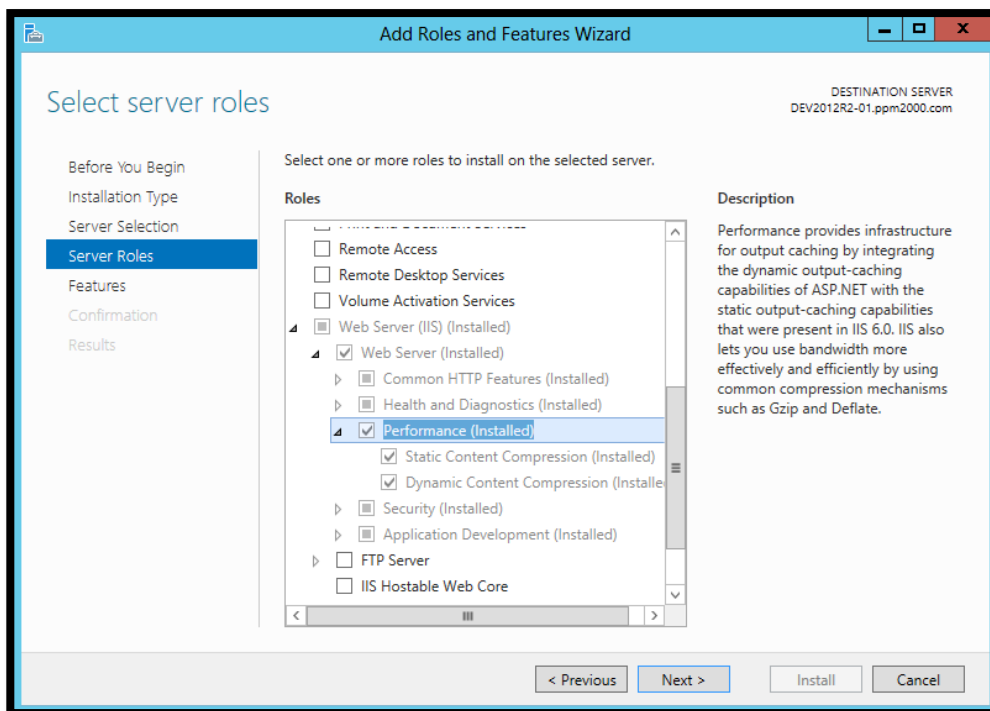
Note: Both the Report Version and Database Version should display as 5.10.

# Advanced Configurations

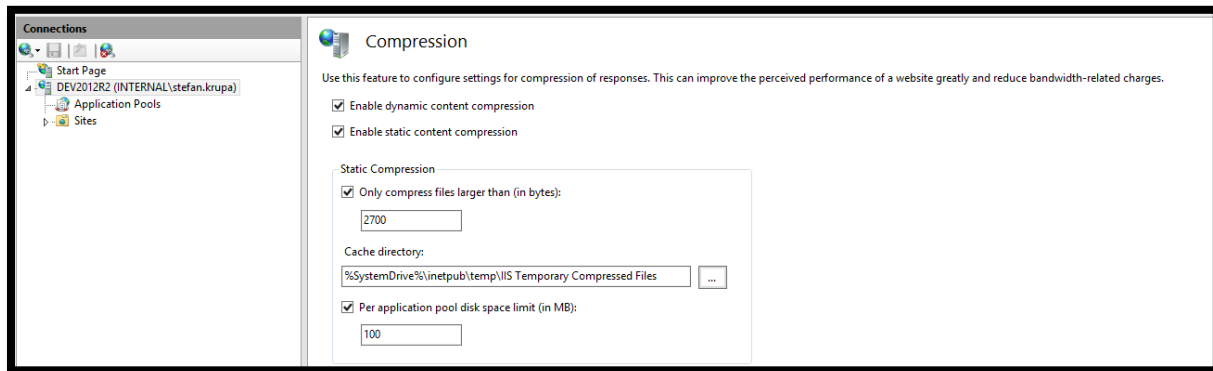
Perspective offers your organization a number of advanced configuration options. Before attempting to implement any of the following options, we recommend that you complete the standard installation first.

## Configuring HTTP Compression for ClickOnce Packages

1. Verify that **Static** and **Dynamic Content Compression** Roles are enabled within **Server Manager**.



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



5. In **IIS**, click on your server.
6. In **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 (by default this can be found in the **%windir%\system32\inetsrv\config** folder).
8. Open this file. Within 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>
```

9. Open the **Command Prompt** as an Administrator and execute the below command:

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

10. Restart IIS.

## Connect Device Manager Configurations

This section applies to users installing an instance of Perspective with the **Dispatch** application, along with **Connect 1.1**. If you're not installing an instance of Perspective with **Dispatch** and **Connect**, skip this section.

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

1. Open the `Perspective_default.config` file "by default, the file path is: `C:\inetpub\wwwroot\Perspective5.10\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:

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

5. **Save** your changes, then close the file.

## Dispatch Service Clustering

This section applies to users who are installing an instance of Perspective with **Dispatch** and wish to implement **Dispatch Service Clustering**. If you're not installing **Dispatch** or you do not wish to use **Dispatch Service Clustering**, skip this section.

1. Ensure [RabbitMQ](#) 3.7.7 or later is installed on the Perspective Application Server.
2. Navigate to the install directory of **Integration Services** (by default the file path is `C:\inetpub\wwwroot\Perspective5.10\IntegrationService`).
3. Open the `Web.config` file.
4. In the `<appSettings>` tags, make changes as needed to the following settings for the deployed web server:
  - **PerspectiveConfigFilePath**: The path where Perspective Services is deployed.
  - **ServiceClusters**: Enter **true** or **false** to enable or disable service clustering for **Dispatch**.
  - **ClusterProcessID**: Enter a number, GUID, or string to identify the instance of **Integration Services**.
5. Copy and paste the `<appSettings>` section and complete the required fields for each instance of **Integration Services**.

Note: Each instance must be assigned a unique number in the `<ClusterProcessID>` tags.

6. Save your changes in the `Web.config` file, then close it.
7. Open the `Perspective_default.config` file (by default, the file path is: `C:\inetpub\wwwroot\Perspective5.10\PerspectiveServices`).
8. In the `<ClusterQueueConfiguration>` tags, enter the following information:
  - **HostName**: The RabbitMQ hostname.
  - **VirtualHost**: The name of the RabbitMQ virtual host that will be used for clustering.
  - **User**: The username of the RabbitMQ user with CRUD access to the virtual host.

- **Password:** The RabbitMQ user's password.
- **NetworkRecoveryIntervallnSeconds:** The number of seconds between each network recovery interval.
- **RequestHeartbeatIntervallnSeconds:** The number of seconds between each heartbeat interval.

9. Save your changes in the **Perspective\_Default.config** file, then close it.

## SAML 2.0 Authentication for SSO

This 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 **Perspective Service Manager**.
2. Click **Configuration** component.
3. Select the **Configure Service Provider** checkbox.
4. Enter your **Perspective Services** URL in the **Perspective URL** field, then click **Validate**.

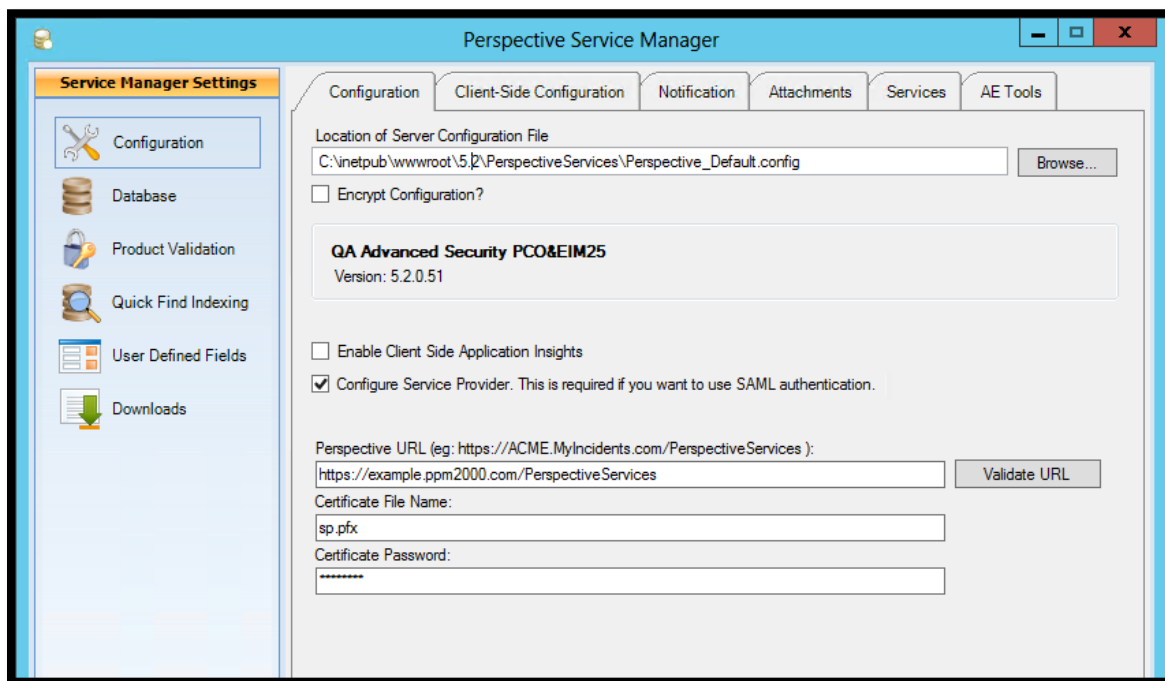
*Note: The URL you enter in this field must exactly match what has been entered into your IdP's configurations, including the case (upper-case or lower-case letters) and slash (/ or \) direction.*

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.

Note: 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.



Note: After completing the above steps, you'll need to select how you will input the identity provider's details.



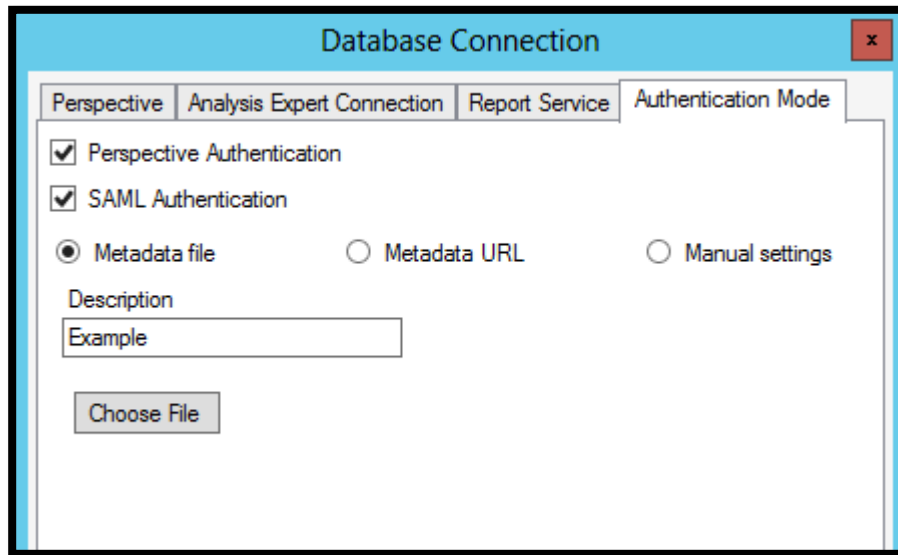
## Identity Provider Configuration

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

1. In **Perspective Service Manager**, click the **Database** component.
2. **Edit** one of the configured databases.
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.*

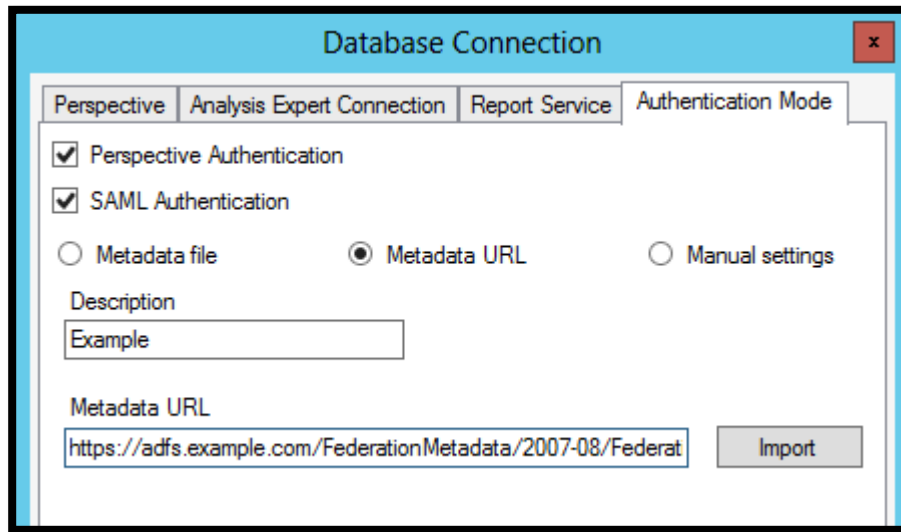
5. Select how you want to input the identity provider information:
  - 8) **Metadata file:** This option will require that you obtain a metadata file from your IdP to import the **SSO** configurations into **Perspective Service Manager**. When downloading a metadata file from your IdP, the certificate 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 **Perspective 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.



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 **Perspective Service Manager**, click the **Database** component.
2. **Edit** the configured database.
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 dialog has four tabs: 'Perspective', 'Analysis Expert Connection', 'Report Service', and 'Authentication Mode'. The 'Authentication Mode' tab is active and contains the following settings:

- Perspective Authentication
- SAML Authentication
- Metadata file
- Metadata URL
- Manual settings
- Description:
- Name:   Sign Authentication Request
- PartnerCertificateFile:   Sign Logout Request
- Single Logout Service Url:   Sign Logout Response
- Single Sign On Service Url:   Sign Assertion
- Encrypt Assertion
- 
- Name ID Format:
- Single Sign On Service Binding:
- 

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 to complete the **SSO** process. This information can be exported into a file using the **Export Metadata** tool in **Perspective Service Manager**.

1. In **Perspective Service Manager**, click the **Database** component.
2. **Edit** the configured database.
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.
7. Select a file name and location to export the metadata.

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

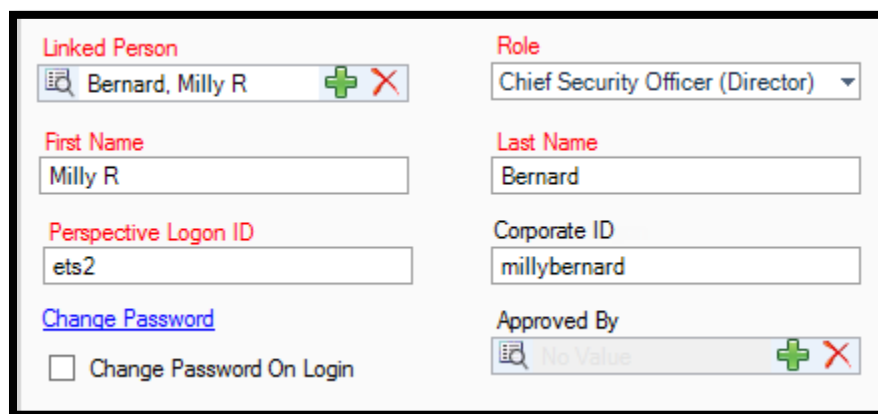
**\*PerspectiveInstallationPath\*\PerspectiveServices\SAML\Metadata** in the **PerspectiveServices** installation directory.

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.

Note: The URL in the **<ServiceProviderBaseURL>** tags in the metadata file must **exactly** match what has been entered into your IdP's configurations and Perspective Service Manager, including the case (upper-case or lower-case letters) and slash (/ or \) direction.

## Perspective Configurations

Once the **Perspective 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**.



The screenshot shows a user details form with the following fields and values:

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

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

## Windows Authentication

Follow the steps below to configure Windows Authentication for your Perspective environment.

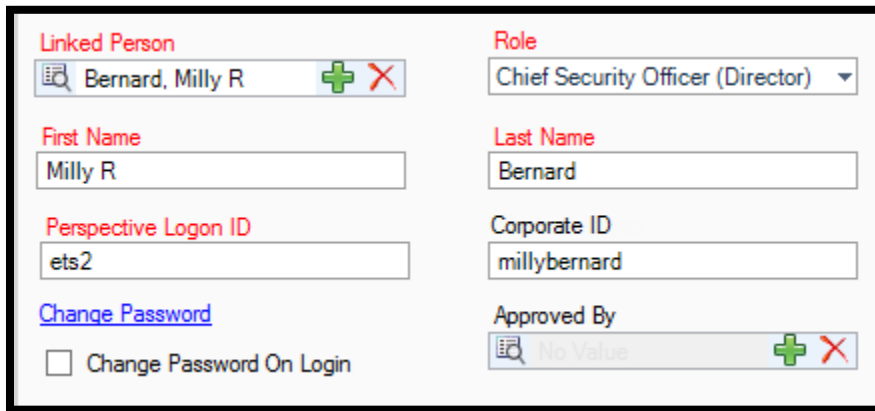
*Note: If you wish to use single sign-on authentication for all Perspective modules (Perspective, Dispatch, Dashboard, and/or Web Portal) you must enable [SAML authentication](#).*

1. Open the **Perspective\_default.config** file (by default, this file is located at **C:\inetpub\wwwroot\Perspective5.10\PerspectiveServices**).
2. Locate the `<WindowsAuthentication>` tag.
3. Delete the **false** value in the tag and replace it with **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=""
```

4. **Save** the file.
5. **Restart** the server in **IIS** to complete the configuration.
6. Once the above changes are complete, a Perspective administrator must enter each user's **Windows Authentication** username in the **Corporate ID** of the Perspective user account field by going to **Administration > Users > User Details**.



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

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

## 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** 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

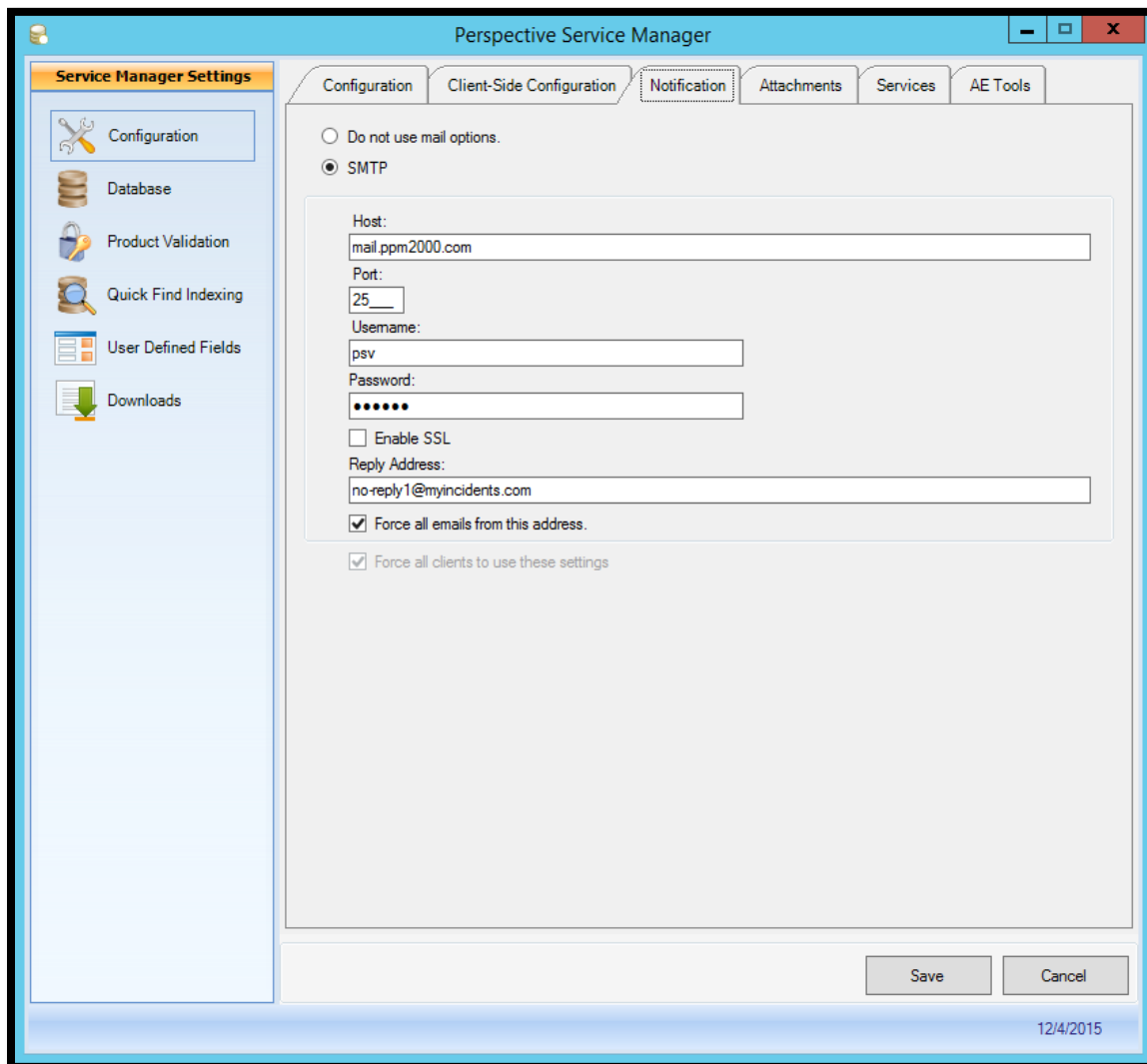
To use an SMTP server to send emails from Perspective, select the **SMTP** radio button and enter the appropriate information for connecting to the SMTP server:

- **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

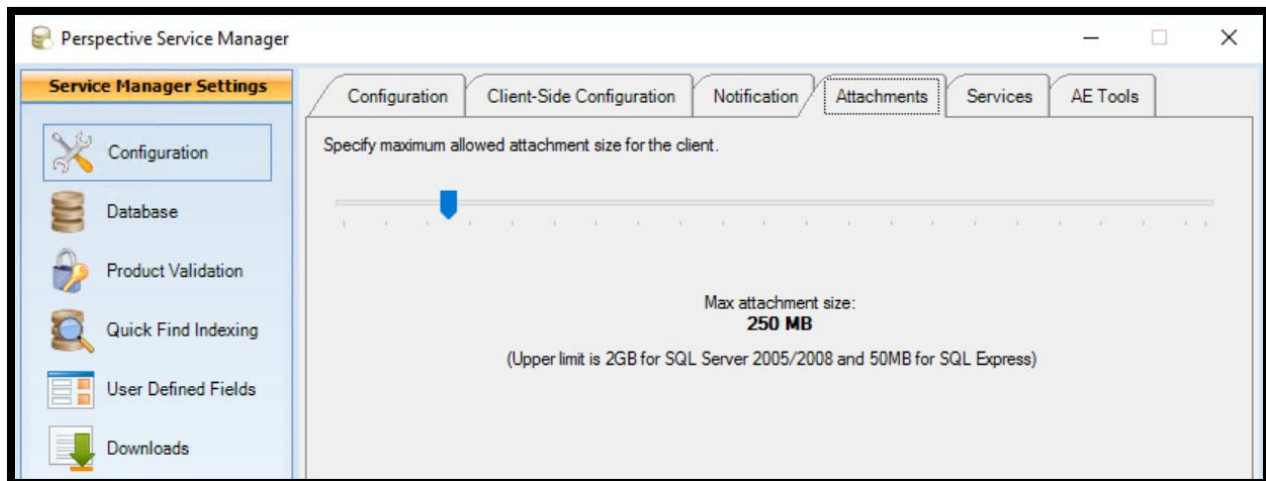
Perspective allows users to attach any file type to any data record in the application. These files are stored directly in the SQL database. Attachment size is the greatest factor in determining how much space will be required in SQL.

To set up the maximum attachment size, select the **Configuration** component in the **Perspective Service Manager** 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.

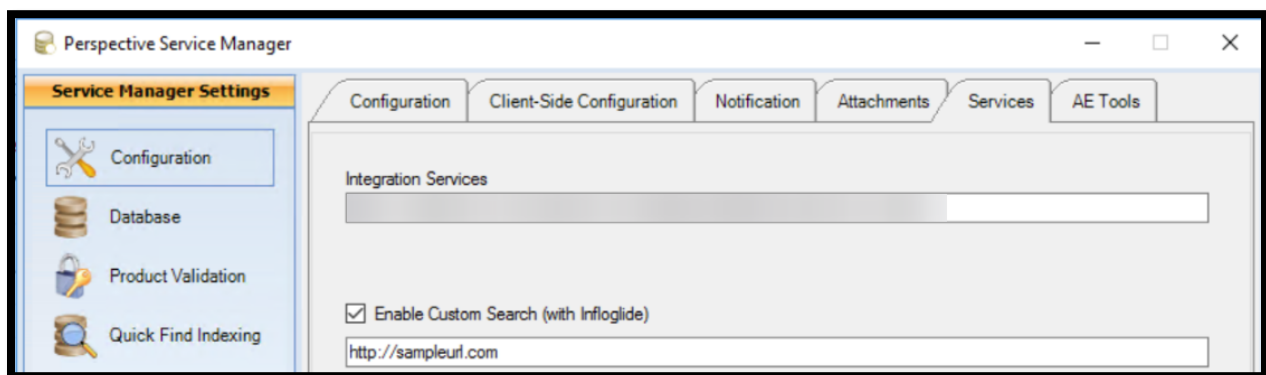


## Custom Search Integration

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.

To set up the **Custom Search** feature, select the **Configuration** component from the **Perspective Service Manager** 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.

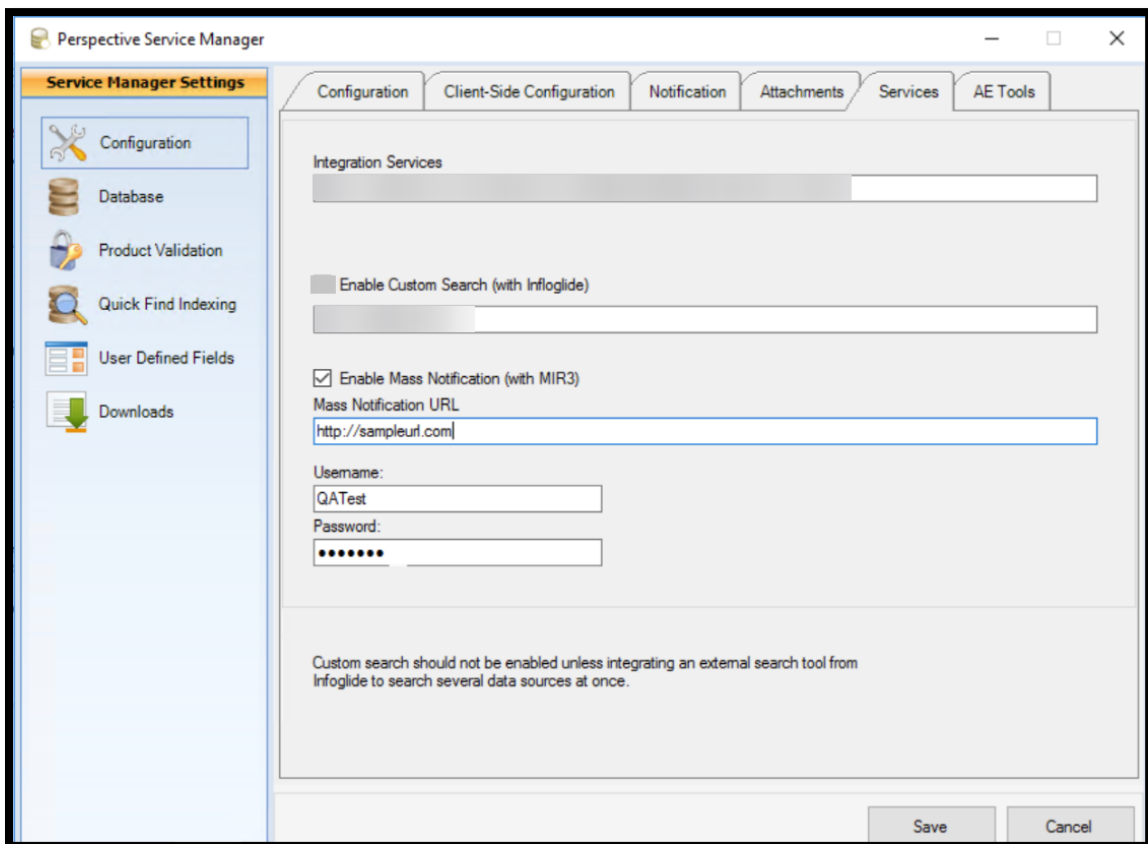
*Note:* To access the **Custom Search** feature, users must be granted the appropriate access rights in Perspective. For details on administering **Custom Search** access for roles and users, see “Select general role rights” and “Set general user rights” in the “Roles” and “Users” sections of the [Perspective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



## MIR3 Mass Notifications (DispatchLog)

Perspective allows users to integrate their **MIR3 Mass Notifications** into Perspective to send mass notifications about selected activities via Perspective **DispatchLog**. **MIR3 Mass Notifications** are not available in **Dispatch**.

9. Select the **Configuration** component in **Perspective Service Manager**.
10. Open the **Services** tab.
11. Check the **Enable Mass Notification (with MIR3)** box and enter the **Mass Notification URL**, **Username** and **Password** provided by MIR3 in the field below.



The screenshot shows the 'Perspective Service Manager' window with the 'Services' tab selected. The 'Integration Services' section is visible, containing several configuration options:

- Enable Custom Search (with Infoglide)
- Enable Mass Notification (with MIR3)

Below the 'Enable Mass Notification (with MIR3)' checkbox, there are three input fields:

- Mass Notification URL:
- Username:
- Password:

At the bottom of the window, there are 'Save' and 'Cancel' buttons. A note at the bottom of the configuration area reads: 'Custom search should not be enabled unless integrating an external search tool from Infoglide to search several data sources at once.'

## Everbridge Mass Notifications (Dispatch)

Perspective allows users to integrate their **Everbridge Mass Notification** solution into Perspective to send mass notifications about selected activities via **Dispatch**. **Everbridge Mass Notifications** are not available in **DispatchLog**.

1. Open the **Perspective\_default.config** file (by default, it can be found at **C:\inetpub\wwwroot\Perspective5.10\PerspectiveServices**).
2. Locate the **<EverbridgeConnectionInfo>** tags and enter the following information:
  - **ManagerURI:** Enter the Everbridge management URL.
  - **URL:** Enter the Everbridge API URL.
  - **User:** The username of the Everbridge user account that will provide access to the system.
  - **Password:** The user's password.
  - **Org:** The Everbridge org ID.

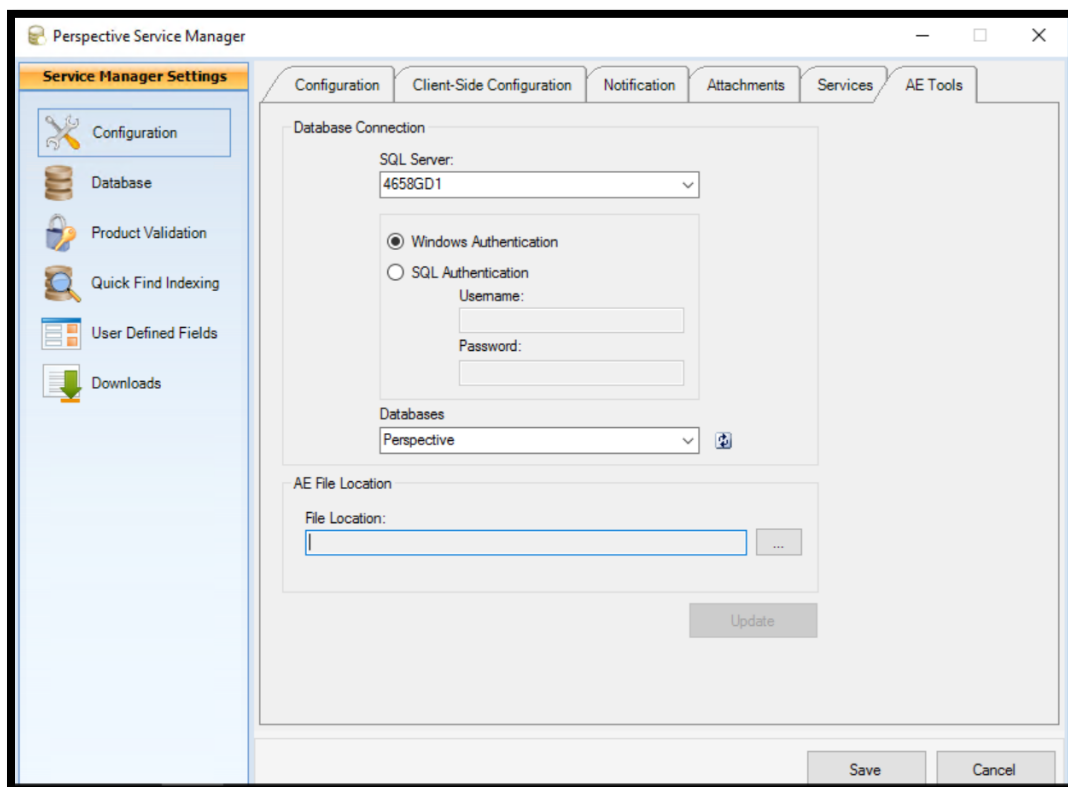
```
<EverbridgeConnectionInfo>ManagerURI=https://manager.everbridge.net;  
URL=https://api.everbridge.net/rest;User=user.name@company.com;  
Pass=EverbridgePassword;Org=12345678912345 </EverbridgeConnectionInfo>
```

3. Save the **Perspective\_default.config** file and close.

## 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 [Resolver Support](#).

1. Select the **Configuration** component from **Perspective Service Manager** 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 [Resolver Support](#) in the **File Location** field.
6. Click **Update**.



## User Defined Fields

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.*

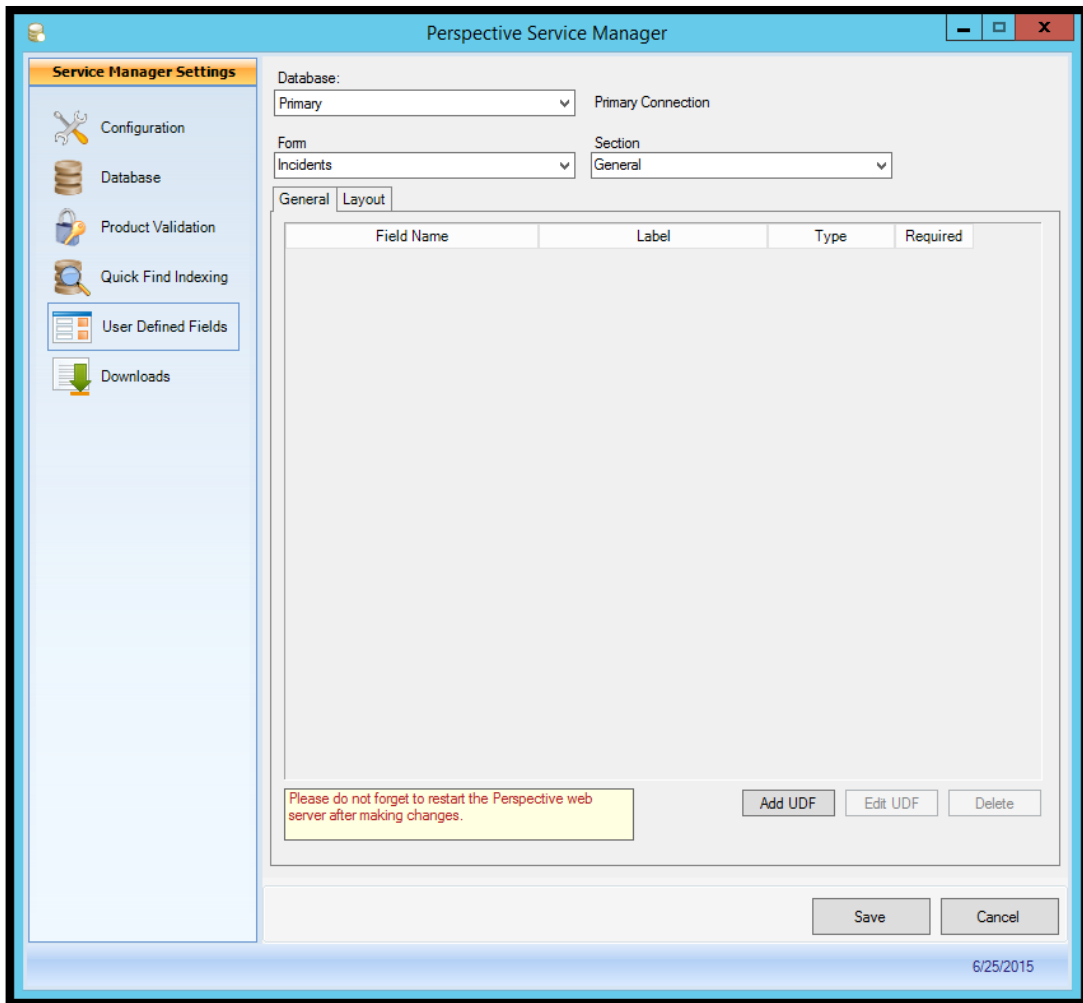
1. To set up **User Defined Fields** for Perspective, select the **User Defined Fields** component within **Perspective Service Manager** and open the **General** tab.
2. From the **Form** lookup list, select the data form in which you would like the new **User Defined Field** to appear. Your options 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.

*Note: 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 **UDF's** name in the **Field Name** text box.

*Note that no special characters or spaces may be used.*

- 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.



- Click **Apply**. The user defined field's details will now appear under the General tab within Perspective.



- 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. It's recommended that you hide or lock the **UDF** within Perspective if you no longer wish to use it.
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.

- **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.
- 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**.

# Contact Information

If you experience any issues along the way when performing your install or upgrade of Perspective, please check out [this FAQ](#) to see if it may solve the issue you are experiencing. If not, feel free to reach out to our support team!

## Technical Support

**Toll Free:** 1-877-776-2995  
**Phone:** (780)-448-0616  
**Email:** [support@resolver.com](mailto: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](mailto: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