RESOLVER

PERSPECTIVE INSTALLATION GUIDE

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Perspective by Resolver Inc.™

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SYSTEM REQUIREMENTS Version 5.1.1

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.5.1.1, Dispatch, and Focal Point[™] V.1.2. 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 [®] Vista SP 3, Window	rs [®] 7 SP 1, Windows [®] 8.1, Windows [®] 10		
.NET Framework	Ve	ersion 4.5.2		
Web Browser – Launch Perspective	Internet l	Explorer [®] 11, Edge		
Web Browser – Web Portal	Internet Explorer [®] 11, Edge, Chro	me*, Safari* iOS 7, Android* Browser 4.2+		
Third Party Application		e Reader [*] 9.4.0+ 171, 8 U25 ¹ , QlikView [*] Analyzer Plug-in for IE ²		
Mobile iOS App	iOS 7	7, iOS 8, iOS 9		
Officer Mobile	iOS 8, iOS 9, Android	4.4, Android 5.1, Android 6.0		
WEB SERVER MACHIN	E ³ (ON PREMISE ONLY)			
Available Disk Space ⁴	1 GB	1 GB		
Processor Speed	2 GHz dual-core	2.5 GHz dual-core		
Memory	4 GB	4 GB		
Operating System		12, Windows Server [®] 2012 R2		
Operating System	IIS with WebSockets enabled ⁵ and	d Secure-Channel configured (HTTPS/SSL)		
.NET Framework	Version 4.5 with HT	TP and non-HTTP activation		
C++ Runtime Libraries	C++ 2010 SP1 Runti	me Libraries (x64) 10.40219		
QlikView [™] Server ²	64-bit V	ersion 11.20 SR1		
DATABASE SERVER M	ACHINE ³ (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 ⁶	SQL Server [®] 2012 SP3, SQL Server [®] 2014 SP1			
Reporting Services	SQL Server [®] 2012 Reporting Ser	vices, SQL Server [®] 2014 Reporting Services		

This requirement only applies if using Visual Analysis. 1.

This requirement only applies to Perspective Focal Point. A limited QlikView™ Server license is included with Focal Point. 2.

3. These requirements apply to systems with up to 25 users. For systems with 25+ users, contact your Resolver account manager for more information.

4. Depending on the size of the Perspective database, more disk space may be needed for Focal Point and Workflow.

This requirement only applies if using Dispatch. 5.

Only SQL Server Enterprise Edition is supported for indexing on audit tables. 6.

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 the same resolution.

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.



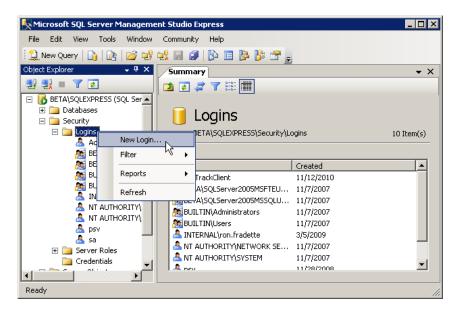
Standard Install

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.

📕 Login - New					_ 🗆 🗵		
Select a page General Server Roles	🔄 Script 🛛	Help					
Server Noies	Users mapped to this login:						
Securables	Map	Database	User	Default Schema	▲		
🚰 Status		model					
		Perspective21Sample	remnyakova				
		ReportServer\$SQLExpr					
		ReportServer\$SQLExpr			-		
Connection Server: BETA\SQLEXPRESS Connection: INTERNAL\svetlana.remnyakov View connection properties View connection properties Progress Ready Ready	Databasee	ecurityadmin ectiveUserRole					
				ОК	Cancel		

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.

Object Explorer					
Connect 🕶 🛃	y = 🝸 🛃 🍒				
😑 🐻 21k74v-201	2a (SQL Server 11.0.2100 - sa)				
⊨ 🖬 D=++++ ⊕ 🖬	New Database				
± 📮	Attach				
± 4	Restore Database				
⊕ □	Restore Files and Filegroups				
± 🧕	Deploy Data-tier Application				
± U ∓ 1	Import Data-tier Application				
± [Start PowerShell				
± 🧧	Reports +				
± U ∓ 1	Refresh				
	spective_45_DefaultwithLicense				
<u> </u>	spective_46_2_Default				
m 🧰 Der	spective 16 2 DefaultI Ingrade				

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.



1.	F	Restore Database	- SchedulingServiceData	abase			- 🗆 X
🛕 A tail-log backup of the source da	atabase will be t	taken. View this setting	g on the Options page.				
Select a page	Script 👻	📑 Help					
I ^M General I ^M Files I ^M Options	Source — O Data	abase:					~
	O Devi	ice:	C:\temp\SchedulingServiceDa	atabase.bak			
		Database:	SchedulingServiceDatabase				~
	Destinatio	n					
	Databa	se:	SchedulingServiceDatabase				¥
	Restore	to:	The last backup taken (March	28, 2016 12:5	6:23 PM))	Timeline
	Restore pla	an					
	· · · ·	ets to restore:					
	Restore	Name		Component	Туре	Server	Database
	✓	SchedulingServiceDa	tabase-Full Database Backup	Database	Full	2LK74V-2012A	SchedulingSen
Connection							
₽ 2lk74v-2012a [sa]							
View connection properties							
Progress	<						>
Oone Done						Verify	Backup Media
				0	K	Cancel	Help

- 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.

Microsoft SQL Server Ma		u <mark>dio Express</mark> munity Help		
🔆 🔔 New Query 🛅 💦	💕 🛶 🔩 🛛			
Object Explorer		mmary		▼ X
ETA/SQLEXPRESS (SO Databases Security		 I a T III IIII I Logins 		
	New Login	BETA\SQLEXPRESS\Security\Lo	ogins	10 Item(s)
🛛 🧖 ВЕ –	Filter ^{PN} Reports	TrackClient	Created 11/12/2010	
	Refresh	A\SQLServer2005MSFTEU		
A NT AUTHO		BUILTIN\Administrators BUILTIN\Users	11/7/2007 11/7/2007	
🧟 sa ⊕ 📄 Server Roles		INTERNAL\ron.fradette NT AUTHORITY\NETWORK SE NT AUTHORITY\SYSTEM	3/5/2009 11/7/2007 11/7/2007	
Credentials			11/7/2007 11/28/2008	
Ready				li

- 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 <u>OR</u> db_datareader and
 db_datawriter role membership rights, then click OK.

🚪 Login - New					_ 🗆 🗙
Select a page General Server Roles User Mapping Securables Status	E Repo	this login: base	User remnyakova ctive21Sample	Default Schema	
Connection Server: BETA\SQLEXPRESS Connection: INTERNAL\svetlana.remnyakov View connection properties Progress Ready Ready	db_accessad db_backupop db_datareade	erator er writer dmin	ctive21Sample	ΟΚ	Cancel
				UK	Cancel

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>.
- Save changes and run the **PublishServerReports.bat** file to publish reports to the Report 4. Manager. If the file fails to run, see Troubleshooting Tips.
- 5. Browse to your Reporting Services Web site (e.g., https://localhost/Reports/).
 - On the Contents tab, click the **Perspective** folder. a.
 - Click Properties, Security and New Role Assignment, then Edit Item Security. b.

🖉 Report M	anager - Windows Internet Explorer	
<u>C</u>	Distriction in the second seco	🗙 ಶ Live Search
File Edit	View Favorites Tools Help	
🚖 Favorites	🕖 Report Manager	
	SQL Server Reporting Services	Home Help 🗾
	Home >	Search for: Go
281	Perspective	
<u>Contents</u>	Properties	
General	🗙 Delete 🤡 New Role, Assignment 🔹 Reve	ert to Parent Security
Security	Group or User+ Role(s)	
security	🗖 <u>Edit</u> BUILTIN\Administrators Content Man	nager
	Edit BUILTIN\Users Content Man	nager
		×

- Enter a Windows Service Account for the Perspective application to use when C. 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**.



🖉 Report Manager - Window	is Internet Explorer		
💽 🗢 🖉 http://localhe	ost/Reports/Pages/EditGroup.aspx 🔽 🖹	🔸 🗙 ಶ Live Search	₽ •
File Edit View Favorites	Tools Help		
🔆 Favorites 🛛 🏀 Report Mar	hager		
SQL Server Re New Role A	porting Services Assignment	Search for:	Home Help 📕 Go
Use this page to define I	role-based security for Perspective.		
Group or user name: rei	mnyakova		
Select one or more roles	to assign to the group or user.		
□ Role↓	Description		
Browser	May view folders, reports and sub	oscribe to reports.	
🗖 Content Manager	May manage content in the Repor resources.	t Server. This includes folders, report	ts and
🗖 My Reports		ports; manage folders, reports and re	esources in a
🗖 Publisher	May publish reports and linked re	ports to the Report Server.	
🗖 Report Builder	May view report definitions.		
OK Cancel			_

Perspective Services (Application Web Server)

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

ishboard cal Server	WELCOME TO SERV	'ER MANAGER			
Servers	5	Add Roles and Features Wizard	_ 0 X		
e and Storage Se	Select server roles		DESTINATION SERVER Q4201250C ppm2000.com		
	Before You Begin Installation Type Server Roles Features Features Confirmation Refuilts	Select one or more roles to install on the selected server. Refer Remean Dektriop Services Web Server (10) Installed Web Server (Installed) Web Server (Installed) I Of Server Store (Installed) Compared Store (Installed) Managemeent Store (Installed) Managemeent Store (Installed)	Description IIS 5 Metabase Compatibility provides inflativucture to query and can un applications and corpus myorated from carrier versions of IIS that use Admin Base Object (ABO) or Active Directory Service Interface (ADS) APs.		ŀ
		Le Manipeters tools (Instance) El 16 Management Compatibility El 16 Management Compatibility El 16 Management Console El 16 Management Console El 16 Soutibility Console El 16 Soutibility Console El 16 Soutibility El 16 Management Sontra and Tools Management Sontra and Tools		All Servers Manageability Events Services	1

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

Lensure 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).



E		Server Manager			_ 🗆 X
2	Add Roles and Features Wizard	_ _ X	• @ P		
Select server roles	5	DESTINATION SERVER TV6DABPDWH5W2LX.ppm2000.com	• 🕲 1	Manage Tools	View Help
Before You Begin	Select one or more roles to install on the selected server.				
Installation Type	Roles	Description			
Server Selection Server Roles Features Confirmation Results		IIS 8.5 and ASP.NET 4.5 support writing server applications that communicate over the WebSocket Protocol.			Hide
	FTP Server V				
			IS 1		
	< Previous Next	> Install Cancel	/anageability		
	Events Ev	ents	Events		
	Services Se	rvices	Services		
		erformance	Performance		
	BF	PA results	BPA results		
					~

- From the Perspective Install > Web Service Setup directory, run as an administrator 1. 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.

😚 User Account Control 🗙			
This file is from an untrusted location. Are you sure you want to run it?			
Program name: Perspective.Services File origin: Network drive			
Show details Yes No			
This file is in a location outside your local network. Files from locations you don't recognize can harm your PC. Only run this file if you trust the location.			
Change when these notifications appear			

- b. Wait for the Perspective Service Setup Wizard to start. Click Next.
- Read the License Agreement. If you accept the terms and conditions, select the C. appropriate radio button, and click Next.
- d. The default install path for the Complete install is C:/inetpub/wwwroot/Perspective5.1. 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.



閿	Perspective Service - InstallShield Wizard 🛛 - 🗆 🗙
-	Perspective Service ram features you selected are being installed.
P	Please wait while the InstallShield Wizard installs Perspective Service. This may take several minutes.
	Status: Installing Microsoft Visual C++ 2010 SP1 Redistributable Package (x64)
InstallShield -	
	< Back Next > Cancel

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

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. The Install Wizard screen appears.
 - b. 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 5.1 Service Manager as an Administrator.

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

@	User Account Control		
Do you want to allow the following program to make changes to this computer?			
P:	Program name: Perspective.ServerManager Verified publisher: PPM 2000 Inc File origin: Hard drive on this computer		
Show deta	ls Yes No		
	Change when these notifications appear		

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\Perspective5.1\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.



Database Connec	tion	×
Perspective		
	Connection ID	
	Sample	
	SQL Server	
	ASUAN2/ALLNE2013	
	🔽 Primary Connection	
	Default Language ID	
	O Windows Authentication	
	SQL Authentication	
	Username:	
	Perspective	
	Password:	
	•••••	
	Databases	
	Perspective_40_Demo	
		1
	OK Cancel	

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

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.
- Ensure SQL Authentication is selected, and enter the SQL Username and Password created 7. when installing the database.
- Select your Perspective database from the Databases lookup list. 8.

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.

8	Perspective Service	Manager	_ 🗆 X
Service Manager Settings	Company Name:		
	PPM		
Configuration	Master Key:		
E Database	PXPONL51230X001XXXXX		Validate
Product Validation	Allow connections to Perspective License Service	e	
Quick Find Indexing	Licensed To	License Expiry: 12/31/2099	
User Defined Fields	Product Level: Perspective EIM	Number Of Licenses: 1000 Concurrent	
Downloads	Enterprise Incident Management	1000 Concurrent	
	Product	Expiry Date	
	Visual Analysis	12/31/2099	
	Mobile Web	12/31/2099	
	PPM Partner NonConsumer	12/31/2099	=
	Case and Investigations	12/31/2099	
	Dashboard	12/31/2099	
	Call Taker Form	12/31/2099	
	Mobile Apple iOS	12/31/2099	
	Web Portal	12/31/2099	
	Language Packs	12/31/2099	
	Mapping	12/31/2099	~
		Save	Cancel
			4/12/2016

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**.

atabase Co	nnection
Perspective	Analysis Expert Connection Report Service Authentication Mode
Rep	port Service Host
	Report Server URL
	http://myserver/reportserver Test
	Reports Folder
	Perspective
	Report Service User
	Domain
	User_Domain_Name
	Username
	User_Login_Name
	Password
	·····
	0K 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> name>/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:					
				Brows	e
Reports Exists On Server:					
Client-Side Reports Versi					
4.0.1126					
Update Reports To Server					
				1	
			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.

Navigate to install location of the scheduling service. If you completed a default installation 1. of Perspective Services, it's located at C:\Program Files\Resolver Inc\Perspective\5.1\Dispatch Scheduling Service. If you completed a custom installation, this location is the path that was specified in the InstallShield Wizard.

B Perspective 5.0 Service - Install	Shield Wizard
Custom Setup Select the program features you want installed.	
Click on an icon in the list below to change how a feature is in Perspective Services Integration Services Real Time Services Web Portal Dispatching Schedule Service	stalled. Feature Description Creates scheduled dispatches, purges closed dispatches and removes entity locks. This feature requires 14MB on your hard drive.
Install to: C:\Program Files\Resolver Inc\Perspective\5.0\Dispatch Scher	duling Service\ Change
InstallShield	Next > Cancel

- 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.
- 5. Open the SchedulingServices.exe.config file.



6. 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" />

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

» 🗖 🗖 🛛	Q 🗟 🚺 🛐 🕨 🔲 🖬						
ervices (Local)	Services (Local)						
	Dispatching Schedule Service	Name	Description	Status	Startup Type	Log On As	
		Device Install Service	Enables a c		Manual (Trig	Local Syste	
	Start the service	Device Setup Manager	Enables the		Manual (Trig	Local Syste	
		CHCP Client	Registers an	Running	Automatic	Local Service	
	Description:	🎑 Diagnostic Policy Service	The Diagno	Running	Automatic (D	Local Service	
	Creates scheduled dispatches, purges	鵒 Diagnostic Service Host	The Diagno		Manual	Local Service	
	closed dispatches and removes entity	🌼 Diagnostic System Host	The Diagno		Manual	Local Syste	
	locks. If this service is stopped, these services will not function properly.	鵒 Diagnostics Tracking Service	The Diagno	Running	Automatic	Local Syste	
	services will not runction property.	🍓 Dispatching Schedule Service	Creates sch		Automatic	Local Syste	
		🔍 Distributed Link Tracking Cl	Maintains li	Running	Automatic	Local Syste	
		Distributed Transaction Co	Coordinates	Running	Automatic (D	Network S	
		🔍 DNS Client	The DNS Cli	Running	Automatic (T	Network S	
		鵒 Encrypting File System (EFS)	Provides th		Manual (Trig	Local Syste	
		🛸 Extensible Authentication P	The Extensi		Manual	Local Syste	
		🗟 Function Discovery Provide	The FDPHO		Manual	Local Service	
		🛸 Function Discovery Resourc	Publishes th		Manual	Local Service	
		🍓 Group Policy Client	The service	Running	Automatic (T	Local Syste	
		鵒 Health Key and Certificate	Provides X.5		Manual	Local Syste	
		鵒 Human Interface Device Ser	Activates an		Manual (Trig	Local Syste	
		鵒 Hyper-V Data Exchange Ser	Provides a	Running	Manual (Trig	Local Syste	
		鵒 Hyper-V Guest Service Inter	Provides an		Manual (Trig	Local Syste	
		🔍 Hyper-V Guest Shutdown S	Provides a	Running	Manual (Trig	Local Syste	
		Hyper-V Heartbeat Service	Monitors th	Running	Manual (Trig	Local Syste	

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

Real Time Service Configuration (DispatchLog)

The Perspective editions that contain the **DispatchLog** component and will need additional configuration to Real Time Services.

- 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.

Port 808 is used by default. ٠

Advanced Settings 2 File View File View Application Pools Application Pool PerspectiveRealTime Advanced Settings	V 3	Internet Information Services (IIS) Manager	_ 🗆 X
Connections Application Pool PerspectiveRealTime4.0 Start Page This page lets you worker processes This page lets you worker processes Chinetpub/www.root/PerspectiveSecitiveSe add Application Pool Defaults Start Page Start Page This page lets you worker processes Filter: Physical Path Credentials Logon ClearText PerspectiveRealTime add Application Pool Defaults Start Page Start Page Start Page Filter: Physical Path Credentials Logon ClearText PerspectiveRealTime Application Pool Defaults Start Page NET v4.5 Clear PerspectivePootal PerspectivePootal PerspectiveRealTime Basks Cettings PerspectivePootal PerspectivePootal PerspectivePootal PerspectiveRealTime Basks Cettings PerspectivePootal PerspectivePootal PerspectivePootal IntervectiveRealTime Basks Cettings PerspectiveService PerspectiveService PerspectiveService IntervectiveRealTime PerspectiveRealTime PerspectiveRealTime PerspectiveService PerspectiveService PerspectiveRealTime PerspectiveRealTime PerspectiveRealTime PerspectiveRealTime PerspectiveRealTime PerspectiveRealTime PerspectiveRealTime<	Co QA2012SOC + Application Pools	Advanced Settings ? X	🖬 🖂 🖄 😥 •
Official Constructions Image: Constructions Physical Path C:ClinetpublywwwrootVPerspective/Ser Image: Constructions Image: Constructions <td>File View Help</td> <td></td> <td></td>	File View Help		
	Applie Start Page Start Start	Physical Path C-Vinetpub\wwwroot\Perspective\Sec Physical Path Credentials Physical Path Credentials Logon ClearText Preload Enabled False Virtual Path /PerspectiveRealTime Behavior Enabled Protocols http.net.tcp	ociated with Set Application Pool Defaults Application Pool Defaults Application Pool Defaults Applications Start 0 Stop 0 Edit Application Pool 1 Basic Settings 1 Advanced Settings
Ready Galactic Control of Control	< III >> IFeatures View	Enabled Protocols Enabled Protocols specifies the protocols that requests can use to access an application. The default value is 'http', which enables both the HTTP and	View Applications View Applications View Applications Palp Online Help 2

Go to the inetpub/wwwroot/Perspective5.1/PerspectiveServices directory and edit the 5. 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 ٠ Web server installed in the previous section.
 - Click the **Perspective** icon. а.



- b. Click Run.
- If you're using the **MSI Package installer**, follow the procedures below. C.
 - i. Browse to the Perspective Services URL:

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.

丛 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

Please refer to the Section titled, Integration Services for more information. Users can't access 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:

- Open an Internet browser (either Google Chrome v29 or greater, or Internet Explorer 11 or 1. 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.
- Administrators will be required to log in to set up the Web Portal. Refer to the Perspective 3. 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.
- Go to the Perspective Services page and confirm that the page loads properly: 2. 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.

(⇐) (⇐) (⇐) (⇐) (⇐) (⇐) (⇐) (⇐) (⇐) (⇐)	Home My Subscriptions Site Settings Help
SQL Server Reporting Services Home	Search P
📸 New Folder 👘 💆 New Data Source 👘 🎬 Report Builder 👘 🕍 Folder Settings 👘 🥀 Upload File	Details View
Perspective	

- Log on to the Perspective client-preferably not on the server itself-using your Perspective 4. 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 5.1.



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 <paginationpagesize>100</paginationpagesize> tag in the Perspective_Default.config file.
Custom Legal Notice and Privacy Statement	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.

Change Default Install Location	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.
Change Caching Options of Portal	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. <i>Note: Caching should always be enabled, unless you are</i> <i>troubleshooting. Disable it by setting caching=false.</i>
Directing to Fully Qualified Servers for Portal	Go to C:/inetpub/wwwroot/Perspective5.1/PerspectivePortal and edit the web config file. Find the external web address and update it to a fully qualified server.

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\5.0\ServiceManager > Perspective.ServerManager or open it from the Startup menu.

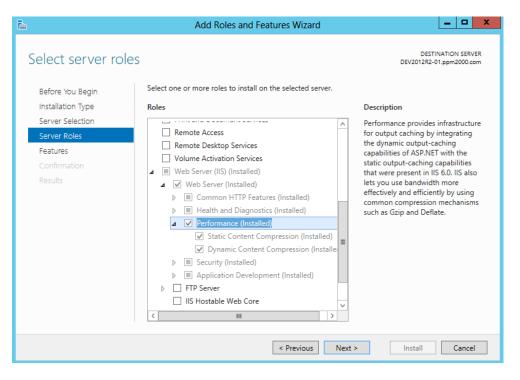
Remember to complete each editing action in Perspective Service Manager by clicking Save Changes. To implement your settings in Perspective, restart Internet Information Services (IIS) (and the Perspective Web server). Note that restarting IIS will affect anyone currently logged on to Perspective. Ensure 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 2012R2



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**.
- Verify the Enable dynamic content compression and Enable static content compression 4. checkboxes are selected.

Connections	Compression			
 Start Page ✓ DEV2012R2 (INTERNAL\stefan.krupa) ✓ Application Pools 	Use this feature to configure settings for compression of responses. This can improve the perceived performance of a website greatly and reduce bandwidth-related charges.			
þ-1oo Sites	✓ Enable static content compression			
	Static Compression			
	Only compress files larger than (in bytes);			
	2700			
	Cache directory:			
	%SystemDrive%\inetpub\temp\llS Temporary Compressed Files			
	✓ Per application pool disk space limit (in MB):			
	100			

- In IIS Manager, click on your server. 5.
- 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 9. cache every file instantly:

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

10. 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.

8	Perspective Service Manager
Service Manager Settings	Configuration Client-Side Configuration Notification Attachments Services AE Tools
Configuration	Location of Server Configuration File C:linetpub\www.root\Perspective4.6\PerspectiveServices\Perspective_DEFAULT.config Browse
Database	Encrypt Configuration?
Product Validation	QA Advanced Security PCO&EIM25 Version: 4.6.1512
Quick Find Indexing	
Downloads	

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.
- Click Update Reports to Server to complete the update. 3.

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



http:// <servername>/perspectiveservices/c</servername>	lient/			
Location of Updated Clientside Reports:		Browse	1	
Reports Exist on Server.				
Clientside Reports Version:				
4.0.1128				
Update Reports to Server				

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.

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.

- 1. Open Service Manager.
- 2. Click **Configuration** in the pane to the left if it's not already open.
- Select the Configure Service Provider checkbox. 3.
- 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.

🗧 Perspective Service Manager					
Service Manager Settings	Configuration Client-Side Configuration Notification Attachments Services AE Tools				
Configuration	Location of Server Configuration File C:linetpublwwwrootlExample\PerspectiveServices\Perspective_Default.config Browse				
E Database	Encrypt Configuration?				
Product Validation	QA HighLimit PNS&EIM1000 Version: 5.1.0.53				
Quick Find Indexing					
User Defined Fields	Configure Service Provider. This is required if you want to use SAML authentication.				
Downloads	Perspective URL (eg: https://ACME.MyIncidents.com/PerspectiveServices):				
	https://example.ppm2000.com/PerspectiveServices Validate URL				
	Certificate File Name:				
	sp.pfx				
	Certificate Password:				
	password				

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 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.

Database Connection					
Perspective	Analysis Expert Connection Report Service Authentication Mode				
Perspective Authentication					
SAML AU	uthentication				
 Metadata 	ta file O Metadata URL O Manual settings				
Description Example	1				
Choose F	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 lowercase letters) and slash (/ or \) direction.

Database Connection				x		
Perspective	Analysis Expert (Connection	Report Service	Authenticat	ion Mode	
Perspectiv	ve Authentication					
SAML Au	thentication					
O Metadata	a file	Metada	ta URL	🔿 Manua	al settings	
Description Example						
Metadata U	IRL					
https://adfs	example.com/Fe	derationMet	adata/2007-08/F	ederat	Import	

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.

- 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. •

	Database	Connection	×
Perspective	Analysis Expert Connection	Report Service	Authentication Mode
Perspecti	ve Authentication		
SAML Au	thentication		
O Metadata	a file O Metada	ata URL	 Manual settings
Description			
Example			
Name			
http://adfs.	example.ppm2000.com/adfs/	/servic 🗌 Sign A	uthentication Request
PartnerCerti	ficateFile	🗌 Sign L	ogout Request
555EF9FF5	8A8EXAMPLE28D28312363	4.cer Sign L	.ogout Response
Single Logo	out Service Url	Sign A	ssertion
https://adfs	example.ppm2000.com/adfs.	/ls	
Single Sign	On Service Url		ot Assertion
https://adfs	s.example.ppm2000.com/adfs	s/ls E	Export Metadata
Name ID Fo	omat		
Windows D	Iomain Qualified Name	~	
Single Sign	On Service Binding		
HTTP Redi	rect	~	
		ОК	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 R Bernard, Milly R 🕂 🕂	Role Chief Security Officer (Director)
First Name	Last Name
Milly R	Bernard
Perspective Logon ID	Corporate ID
ets2	millybernard
Change Password	Approved By
Change Password On Login	🖳 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.

- Navigate to the install directory of Integration Services. By default, the directory is located 1. at C:\inetpub\wwwroot\Perspective5.1\IntegrationServices.
- 2. Open the **web.config** file.
- 3. 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\dbinstance>;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.



8	Perspective Service Manager
Service Manager Settings	Configuration Client-Side Configuration Notification Attachments Services AE Tools
Configuration	Do not use mail options. SMTP
Database	
Product Validation	Host: mail.ppm2000.com
Quick Find Indexing	Port: 25
User Defined Fields	Usemame: psv Password:
Downloads	Enable SSL Reply Address:
	no-reply1@myincidents.com
	Force all emails from this address.
	✓ Force all clients to use these settings
	Save Cancel
	12/4/2015

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

- 11. To enable event trigger in Integration Services, select the **Configuration** component from the Perspective Service Manager menu and open the Services tab.
- 12. Enter the URL set up with the Integration Services in the Integration Services field.
- 13. 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.



ttegration Services https://staging.ppm2000.com/Integration	Services 20		
Enable Trigger Notification	Allow Hot Key Events		
E hle forstom fears' (with stogics)		111	111
En ble Coston Charol (with foglion			111
E ble C stor Ceard (with fogling	******	***	

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.



4	Configuration Cl	lient-Side Configuration	Notification	Attachments	Services AE	Tools
	Integration Services					
	https://Staging.ppm2	00.com/IntegrationService	5			
	Enable Trigger No	trication	Allow Hot	Key Events		
	Enable Custom Se					
	http://www.sampleur	Loom				
					Save Changes	Egt

Mass Notifications

In Perspective, users can integrate their MIR3[™] inEnterprise[™] 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.



Integration S https://Stag	Services ging.ppm2000.com/IntegrationServices30	_	
Enable	Trigger Notification		
Enable (Custom Search (with Infoglide)*		
Enable I	Mass Notification (with MIR3)		
Mass Notific	ation Url	_	
	DSERVICES MILS COM/SERVICES/V1.2/MILS		
,	bservices.mir3.com/services/v1.2/mir3		
Usemame:	QATest		
,	QATest		
, Usemame: Password: * Custom Se	QATest	1 tool	

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.
- 6. Click Update.



Configuration Client-Side Configuration Notification Attachments Services AE	lools
Database Connection	
SQL Server: 4658GD1	
Windows Authentication	
C SQL Authentication	
Usemame:	
Password:	
Password:	
Databases: Perspective	
AE File Location	
File Location: \\ppm2000	
Update	
Save Changes	Exit

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

- 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.
- Select an Index Directory to store the index files. The name of the index directory must end 3. 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).



- Optional: You can expect the Index file to be approximately 1/3 of your database size. If 4. 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.



8	Perspective Service Manager
Service Manager Settings	Database to Index
	Allow Quick Find
E Database	Index Directory C:\[Your_Index_Path_Here]\[Your_Business_ID_Here] Browse Description of the second s
Product Validation	Specify folder in alternate drive to store cache while indexing? Cache Drive/Directory Browse
Quick Find Indexing	✓ Use noise word file? Path where noise word file exists.
User Defined Fields	c:\windows\system32
Downloads	Treat hyphens as spaces. Ignore numeric and date values
	Entity/Column Selection
	Select All None • Activity lems • Activity lems • Category/Type • O Disposition • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Motes • Serial Number • Make/Model • Motes • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Make/Model • Matity Dr
	6/25/2015
	6/20/2015

- 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\5.1\ServiceManager"
- 11. To perform full indexing on the default database, enter the following command: Perspective.Indexer.exe /c="C:\[PerspectiveServicesPath]\Perspective5.1\PerspectiveServices\Perspective_Defau lt.config"
- 12. To perform full indexing on a specific database, add the /d switch to the command: Perspective.Indexer.exe

/c="C:\[PerspectiveServicesPath]\Perspective5.1\PerspectiveServices\Perspective_Defau
lt.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]\Perspective5.1\PerspectiveServices\Perspective_Defau lt.config" /i
- 14. To perform incremental indexing on a specific database, use the /d and /i switches: Perspective.Indexer.exe /c="C:\[PerspectiveServicesPath]\Perspective5.1\PerspectiveServices\Perspective_Defau lt.config" /d="database name" /i
- 15. Repeat steps 10-15 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.

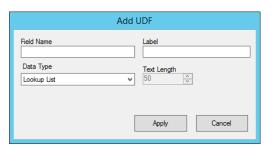
- 1. To set up user defined fields for Perspective, select the **User Defined Fields** banner at the bottom of the Perspective Service Manager menu and open the **General** tab.
- 2. From the **Form** lookup list, select the data form in which you would like the new user defined field to appear. Your 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.

8	Perspective Servic	e Manager		– – ×
Service Manager Settings	Database:			
Configuration	Primary V	Primary Connection		
Database	Form Incidents	Section General	~	
	General Layout			
Product Validation	Field Name	Label	Туре	Required
Quick Find Indexing				
User Defined Fields				
Downloads				
	Please do not forget to restart the Perspective w server after making changes.	eb	Add UDF Edit U	DF Delete
			Save	Cancel
				6/25/2015



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.

Form Incident Persons	•	Section General	
General Layout			
	udfMaritalStatus		
	Top: 100 - Left: 210		
		Default Layout	Previous Layout Save Layout

- 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.

- Go into Windows Event Viewer. 1.
- 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 are set up

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

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.
- Enter the name "Perspective" and select the name of your SQL Server. 3.
- 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 *üsreset* from the Start menu.

Database Server

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

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

Final Former For

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**.

- Open the **Perspective_default.config** file. By default, this file is located at C:\inetpub\wwwroot\Perspective5.1\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 righ-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

If the client machine's operating system is Windows Vista, Windows 7, Windows 8, clear the contents of the following folder: C:\Users\<username>\AppData\Local\Apps\2.0.

Note: If you delete the contents of the folders, all Click-Once applications will be deleted.

- Browse to the Perspective Services URL: https://<servername>/PerspectiveServices. 1.
- Click the Launch Perspective button to re-download the entire Perspective application. 2.
- In the dialog box that opens, click **Run**. The Perspective client will automatically launch. 3.
- Enter the Perspective Services URL (e.g., https://<servername>/PerspectiveServices), and click 4. OK.

Proceed to log 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	
Solution		
• Launch the Perspective client from the	Perspective server and attempt to logon.	
Make sure the user account is a memb	er of the IIS_WPG group on the Perspective server.	
Response is not well formed .XML.	Perspective Client error	
Solution		
• May be due to a missing bracket or ot Perspective_Default.config file.	her formatting issue in the	
• May also be a permissions issue. See y	our local Security Policy.	
Connection to the service not found/SQL Exception/Login failed for user.		
Solution		
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.		



Contact Information

Technical Support

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

Resolver

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

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
Activities	Activity > Organization Requests	Contact First Name
Activities	Activity > Organization Request	Contact Last Name
Activities	Activity > Organization Requests	Contact Middle Initial



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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	CaseInvestigationInterviewHistory	ChangedByPersonDescription
Cases	CaseInvestigationInterviewHistory	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
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



Section	Sub-Section(s)	Field
Cases	CaseInvestigationSummaryHistory	ChangedByPersonDescription
Cases	CaseInvestigationSummaryHistory	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	Туре
Cases	Class Rollups	Class Rollup Name
Cases	Evidence Log > Status	Evidence Status
Cases	Evidence Log > Status	Person In Possession
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



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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
ltems	Item > Class Rollups	Item Category
ltems	Item > Class Rollups	Item Class Name
ltems	Item > Class Rollups	Item Class Rollup Name
ltems	Item > Class Rollups	Item Type
Items	Item > Class Rollups	Level3
ltems	Item > Class Rollups	Level4
ltems	Item > Class Rollups	Rollup Level
ltems	Item Make Model Rollups	Item Make
ltems	Item Make Model Rollups	Item Make Model Name
ltems	Item Make Model Rollups	ltem Make Model Rollup Name
ltems	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
ltems	Items	Owner Identified
Items	Items	Owner Name Organization
Items	Items	Owner Name Person
Items	Items	Serial Number
Organizations	Link Persons	Linked To Person



Section	Sub-Section(s)	Field
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	Туре
Organizations	Organization > Addresses	Zip/Postal Code
Organizations	Organization > Email Addresses	Email Address
Organizations	Organization > Email Addresses	Organization ID
Organizations	Organization > Email Addresses	Туре
Organizations	Organization > Phone Numbers	Organization ID
Organizations	Organization > Phone Numbers	Phone Number
Organizations	Organization > Phone Numbers	Туре
Organizations	Organizations	Access Level
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



Section	Sub-Section(s)	Field
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
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



Section	Sub-Section(s)	Field
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