SolarWinds

Database Performance Analyzer
Orion Integration Module
Administrator Guide

solarwinds

Unexpected Simplicity

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Chapter 1: Introduction to DPA on Orion

Integrating SolarWinds Database Performance Analyzer (DPA) with the SolarWinds Orion platform provides visibility to issues affecting your database performance in the Orion Web Console with the rest of your monitoring information. You can view database instance information directly with other environmental factors to get a more comprehensive view of issues affecting users and your IT infrastructure.

Integrating SolarWinds DPA information into your SolarWinds Orion platform adds SolarWinds DPA-specific resources that poll information directly from DPA and expands the breadth of information available in other resources. Information from SolarWinds DPA, such as database wait time, improve your ability to troubleshoot slow response times or pinpoint database instances that need more resources.

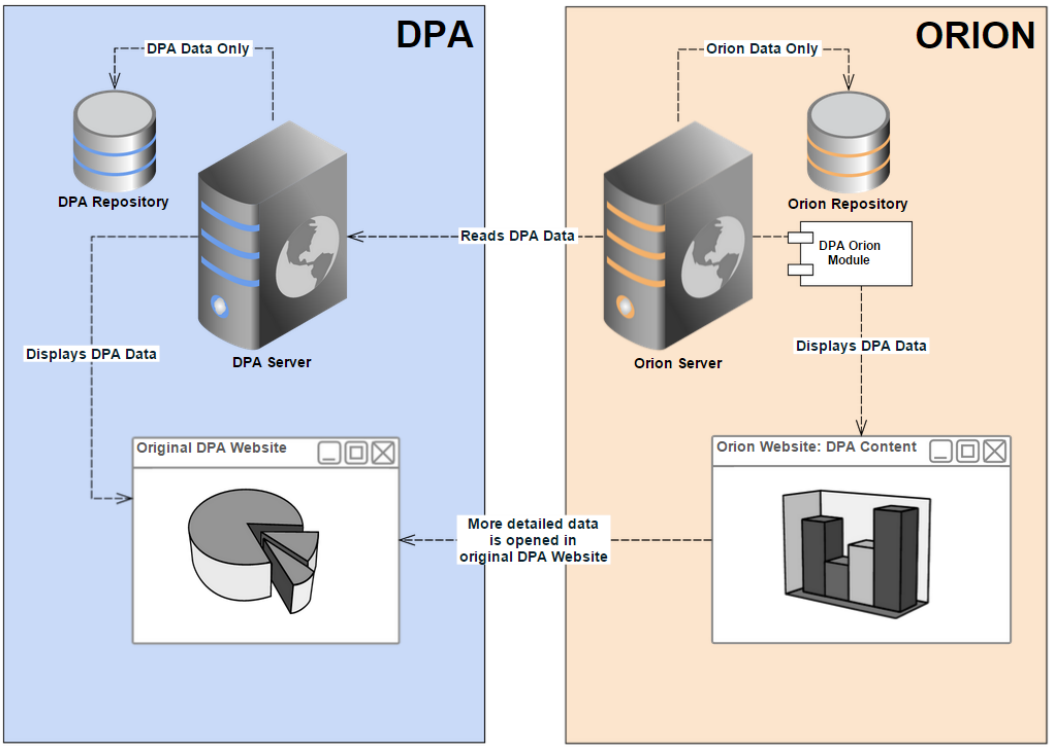
There are three basic steps to set up the integration:

1. Define your SolarWinds DPA server.
2. Relate database instances between SolarWinds Orion platform products and SolarWinds DPA.
3. Relate applications to your databases and queries.

After the integration set up is complete, the SolarWinds Orion server saves the relationships made between SolarWinds DPA database instances and nodes and applications monitored by the SolarWinds Orion platform. The SolarWinds Orion server uses a service account created during integration set up to poll the SolarWinds DPA server for information and uses the relationships stored in the SolarWinds Orion database to display the related node or application. The SolarWinds Orion server requests information from the SolarWinds DPA server over SSL on port 8124 and provides links to SolarWinds DPA in the Orion Web Console that allow you to view more detailed information. Users are logged on to SolarWinds DPA with the service account credentials

unless they already have a session open to SolarWinds DPA. No data from the SolarWinds Orion server is displayed in SolarWinds DPA.

The following diagram illustrates how SolarWinds DPA integrates with the Orion platform:



Integrating SolarWinds DPA with the Orion platform adds a **Databases** tab to the Orion Web Console, providing a home for all of your database monitoring. The Databases Summary view provides a dashboard style glance at database performance across your organization, whether the databases are monitored in SolarWinds DPA or in an Orion platform product.

This guide provides information on integrating SolarWinds DPA with the Orion platform and changes that occur on the Orion Web Console after integration, with special focus on the Databases tab. Integrated database information is most helpful when used in conjunction with SolarWinds Server & Application Monitor (SAM), so this guide draws on many examples assuming you have installed SolarWinds SAM.

- To view a training video on using this product, go to the SolarWinds website.

- For detailed information on using DPA, see the SolarWinds Database Performance Analyzer Administrator Guide (PDF).
- For information on all of the features of the Orion Web Console, see the SolarWinds Server & Application Monitor Administrator Guide (PDF).

Special DPA-SAM Integration Features

Integrating SolarWinds DPA with SolarWinds SAM provides specific features only available when the two are integrated:

- **Applications Using My Databases Resource**–This resource displays every application monitored by SolarWinds SAM that queries any database monitored by SolarWinds DPA, including applications that communicates with multiple databases.
- **Applications Using This Database**–This resource is found on the Database Instance view and displays which applications are querying this database instance.
- **Database Response Time (Client) Resource**–This resource is added to the Application view for applications that query databases monitored by SolarWinds DPA. It shows you how long your application is waiting on the database, and why. The histogram breaks down the time the application waited into discreet wait types that identify what the database was doing, which often identifies resource contention. The information icon next to each wait type provides a description of what the wait type means, common solutions, and the role within your organization most capable of this work.
- **Database Instances resource**–This resource contains all of the database instances from SolarWinds DPA and your SolarWinds Orion server, and displays SolarWinds DPA metrics for database instances monitored by SolarWinds DPA.
- **DB Performance tab**–This tab is added to all supported SolarWinds SAM database applications and provides SolarWinds DPA KPI metrics for the database applications.

Chapter 2: Integrating DPA with SolarWinds Orion platform products

You can integrate any SolarWinds Orion platform product running on Orion platform version 2015.1.2 or later with a single instance of SolarWinds Database Performance Analyzer version 9.2 or later. The SolarWinds DPA integration provides visibility into the performance metrics and suggested solutions that DPA provides. You cannot make changes to a database instance monitored by SolarWinds DPA from the SolarWinds Orion server.

SolarWinds SAM version 6.2.1 installs with the Database Performance Analyzer Orion Integration Module by default.

To integrate SolarWinds SAM and SolarWinds DPA:

1. Check the prerequisites to ensure that your SolarWinds DPA server is running a supported version and that the port and browser requirements are met.
2. Set up the Orion platform to DPA integration.
3. Run the Integration Wizard.

For other SolarWinds Orion platform products, such as SolarWinds NPM or NTA, you must download and install an integration module on your SolarWinds Orion server.

To integrate SolarWinds DPA and other Orion platform products:

1. Check the prerequisites to ensure that your SolarWinds DPA server is running a supported version and that the port and browser requirements are met.
2. Download and install the Database Performance Analyzer Orion Integration Module on your SolarWinds Orion server.
3. Set up the Orion platform to DPA integration.
4. Run the Integration Wizard.

Checking prerequisites

The Database Performance Analyzer and SolarWindsOrion platform integration requires the following software versions to be already installed :

- Database Performance Analyzer version 9.2 or later
- SolarWinds Orion platform version 2015.1.2 or later (SAM 6.2.1 or later)

SolarWinds recommends that you install Database Performance Analyzer and your SolarWinds Orion server on separate computers with separate databases.

While SolarWinds SAM and SolarWinds DPA can integrate without extra configuration, you can take steps to relate SolarWinds DPA database instances to SolarWinds SAM applications more easily. See Preparing SAM applications for integration for more information.

Port requirements

In addition to the port requirements necessary for SolarWinds DPA and your Orion platform product, integrating the two systems requires the following ports.

Ports on the SolarWinds DPA server

Port	Type	Purpose
443 (cloud) or 8124 (on-premise)	TCP (HTTPS)	This is the default port number of your DPA website and jSWIS proxy and must be open to receive data from the SolarWinds Orion server.

Ports on the SolarWinds Orion server

Port	Type	Purpose
17776	TCP	This port must be open to access the SolarWinds Information Service API (notifications).
17777	TCP	This port must be open for all Orion platform product traffic.
17778	TCP	This port must be open to access the SolarWinds Information Service API.

Browser requirements

SolarWinds DPA supports the following browsers:

- Firefox 35 and higher
- Chrome (latest version)
- Microsoft Internet Explorer (IE) 9, 10, and 11 with Active scripting

Notes:

- Do not use IE compatibility view. It is incompatible with SolarWinds DPA and may cause the software to function incorrectly.
- If you want to allow users who have logged out of SolarWinds DPA access to read only information in the SolarWinds DPA server, allow your browsers to accept third-party cookies.
- On IE 10, node tools, such as Real-Time Process Explorer or Service Control Manager, may open in a new browser tab or window instead of a popup window.

Installing the SolarWinds DPA module

SolarWinds SAM 6.2.1 or higher installs the SolarWinds Database Performance Analyzer Orion Integration Module by default and is ready to set up DPA integration.

For other SolarWinds Orion products such as SolarWinds NPM, SRM, or VMAN, SolarWinds provides an MSI file that you run on your SolarWinds Orion server to prepare it for SolarWinds DPA integration. Your product must run on Orion platform version 2015.1.2 to integrate with SolarWinds DPA.

The MSI file is located on the Customer Portal if you have purchased or are evaluating SolarWinds DPA. After you have installed the SolarWinds DPA Orion integration module on your SolarWinds Orion server, complete the integration from the **Settings** page.

To install the SolarWinds DPA Orion integration module:

1. Ensure that all prerequisites are met.
2. Log on to your SolarWinds Orion server as an administrator.
3. Download the integration MSI file to your SolarWinds Orion server from the Customer Portal. It is available with a trial or purchased copy of Database Performance Analyzer version 9.2 or higher.
4. Run the installer as an administrator. The setup wizard opens.
5. Click **Next** to begin installing the software.
6. If you accept the terms of the license agreement, select **I accept the terms of the License Agreement**, and then click **Next**.
7. Click **Install**.
8. After the installer is complete, click **Finish**. The Configuration Wizard opens.
9. Click **Next** to configure the Orion DPA module.
10. Review the changes the Configuration Wizard will perform to your installation, and click **Next**.
11. After the Configuration Wizard completes its tasks, click **Finish**.

After you complete the installation the Databases tab appears in the Orion Web Console, and you are ready to set up DPA integration.

Setting up SolarWinds DPA integration

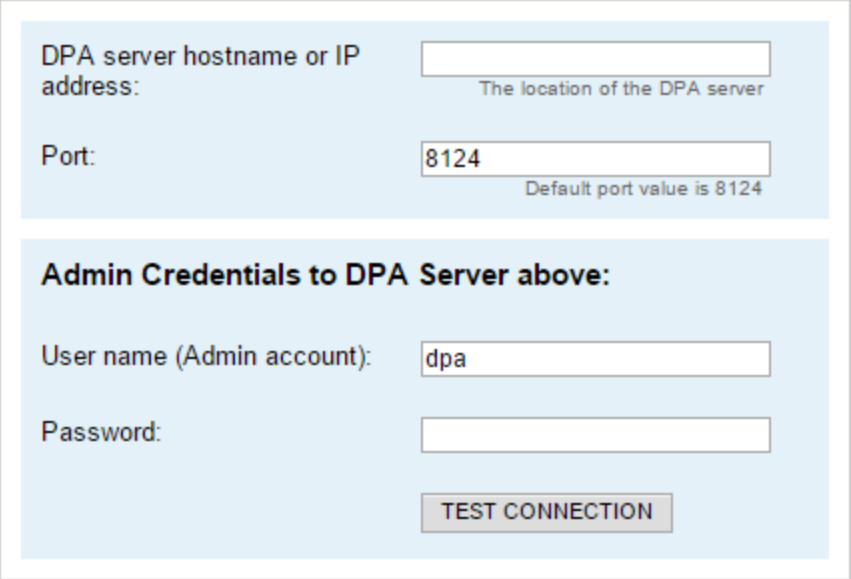
You need the following information to integrate SolarWinds DPA with your SolarWinds Orion platform product:

- SolarWinds DPA server name or IP address (IPv4 or IPv6)
- SolarWinds DPA port number (the default is 8124 for on-premise installs or 443 for cloud installs)

- SolarWinds DPA administrator credentials
- SolarWinds Orion server name or IP address (optional)

To set up the integration:

1. Log on as an administrator. Non-administrator accounts cannot view the **Set Up DPA Integration** page.
2. Navigate to **Settings > Database Performance Analyzer > Set Up DPA Integration**. You can also click **Start the Integration Wizard** from the popup on the Databases tab.



3. Enter your SolarWinds DPA server information.
4. Click **Test Connection**. This ensures that the SolarWinds Orion server can communicate with SolarWinds DPA before performing any integration tasks.
5. If the SolarWinds DPA server is not able to communicate back to the SolarWinds Orion server, a new section for SolarWinds Orion server information displays. Enter your SolarWinds Orion server information using the server's fully qualified domain name or IP address.
6. If the connection test is successful, click **Submit and Start Wizard**.

After the integration is set up, the Assigning Applications to DPA Database Instances opens and begins to create relationships between nodes and

applications in your SolarWinds Orion server and database instances from SolarWinds DPA.

What happens during the integration set up?

During set up, the connection and credentials are tested to ensure that the SolarWinds DPA server and the SolarWinds Orion server can communicate. Then the DPA administrator credentials are used to create service accounts on the DPA server, which are then saved to the SolarWinds Orion server. The connection and credentials are tested again, and single sign-on is enabled. Federation is set up so that the SolarWinds Orion server can retrieve information from both the SolarWinds Orion database and the SolarWinds DPA database.

The service account is used when the SolarWinds Orion server queries the SolarWinds DPA server for information.

Assigning Applications to DPA Database Instances

After setting up the SolarWinds DPA integration, create relationships between nodes and applications in the SolarWinds Orion server and the database instances monitored by your SolarWinds DPA server. The Orion platform can only integrate with a single instance of SolarWinds DPA, and cannot integrate with SolarWinds DPA central configurations. Once relationships are created between SolarWinds Orion objects and SolarWinds DPA database instances, the Orion Web Console displays information from both systems in the same resources and views.

The integration wizard begins automatically after the initial integration is complete. If you need to return to the integration wizard later, navigate to **Settings > Database Performance Analyzer > Configure Database Instances and Client Applications**. .

The integration wizard retrieves database instance information from SolarWinds DPA and attempts to build relationships automatically between the SolarWinds DPA database instances and SolarWinds Orion nodes and applications based on the following criteria:

- IP addresses
- host names
- SolarWinds SAM application templates

- database instance specific settings, such as instance name, SID, or port number

You may also manually change or establish relationships during the wizard. Manual, or custom, relationships are preserved if you run the wizard again. However, all relationships are lost if you remove the integration.

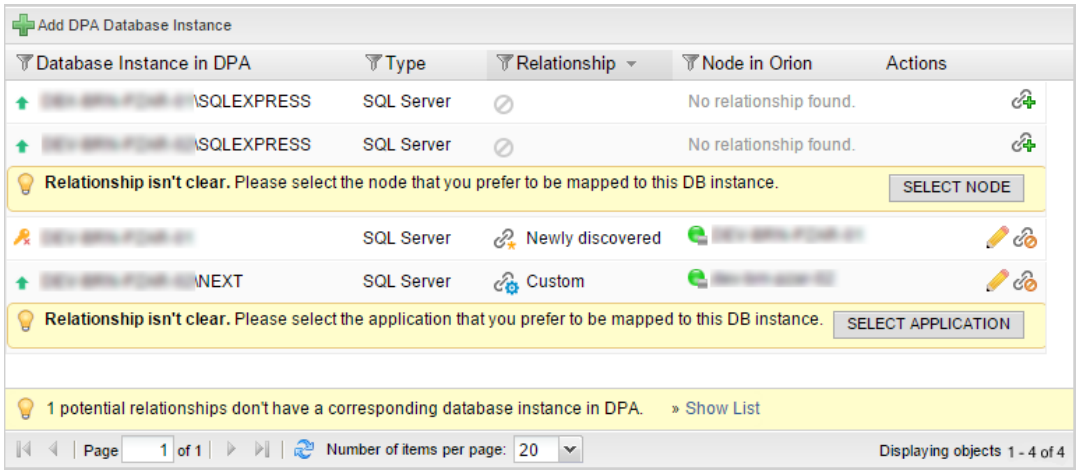
For more information about how the wizard relates objects and database instances, see How the Integration Wizard works.

Notes:

- Database instances must exist in SolarWinds DPA before relationships can be created.
- *Database* refers to the database server, and all applications that ask for information are considered *clients*.

To run the wizard:

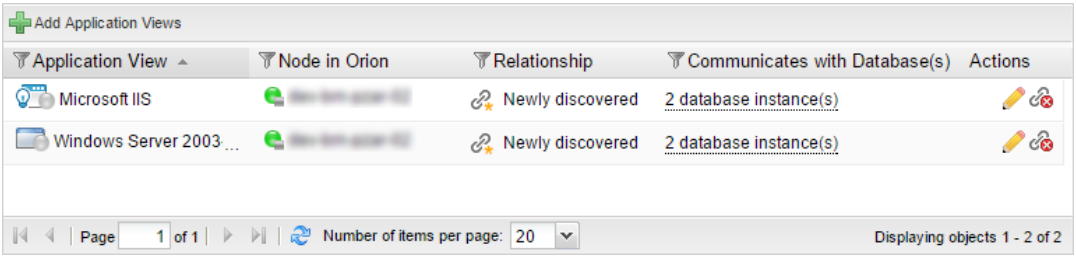
1. Navigate to **Settings > Database Performance Analyzer**.
2. Click **Run Integration Wizard**. Database instances in SolarWinds DPA are automatically detected and related to nodes in your SolarWinds Orion server. You can edit or delete the relationships; define new relationships; or open SolarWinds DPA to register a new, monitored database instance.



   - To edit a relationship, click the **Edit** icon in the Actions column, select the node that represents the database instance in the SolarWinds Orion server, and click **Update Relationships**.

- To delete a relationship, click the **Unlink** icon in the Actions column, and confirm that you want to delete the relationship.
- To define a relationship, click the **Define** icon in the Actions column, select the node in your Orion platform product that corresponds to the database instance in DPA, and click **Update Relationships**.
- To create a new database instance, click the **Add DPA Database Instance** button on the toolbar. Your SolarWinds DPA website opens in a new tab. Log on as a SolarWinds DPA administrator, and create your new database instance as normal in SolarWinds DPA.

3. Click **Next**. The Client Applications step is displayed, which relates applications to a specific database instance. You can add, edit, or delete relationships between applications and database instances.



- To add a relationship, click the **Add Application Views** in the toolbar. In the Application View Configuration dialog, select an application in step one, select one or more database instances in step two, and click **Save Application**.
- To edit a relationship, click the **Edit** icon in the Actions column. In the Application View Configuration dialog, select one or more database instances, and click **Save Application**.
- To delete a relationship, click the **Delete** icon in the Actions column, and confirm that you want to delete the relationship.

4. Click **Next**. The Review step is displayed.
5. Review your information.
   - If you are satisfied with the relationships, click **Finish**.
   - If you need to make changes, click **Back to Managing Relationships** or **Back to Managing Applications**, and modify the relationships.

The Databases Summary screen is displayed.

All databases are now displayed in the Database Instances resource with SolarWinds DPA KPIs such as wait time, query, CPU, memory, disk, and session information. Database instances that are not monitored with SolarWinds DPA do not display SolarWinds DPA KPIs.

Chapter 3: Managing the Orion Web Console

The Orion Web Console is an integral part of the Orion family of products that can be configured for viewing from virtually any computer connected to the Internet. You can also customize the web console for multiple users and store individually customized views as user profiles. Administrator functions are accessed by clicking **Settings** in the top right of all Orion Web Console views.

Logging in for the First Time as an Administrator

When you launch the Orion Web Console, you are presented with a login view requiring both a **User Name** and a **Password**.

To log in to the Orion Web Console:

1. Launch the Orion Web Console using either of the following methods:
   - Click **Start > All Programs > SolarWinds Orion > Orion Web Console**.
   - Or launch a browser and enter `http://ip_address` or `http://hostname`, where *ip_address* is the IP address of your SolarWinds Orion server, or where *hostname* is the domain name of your SolarWinds Orion server.
2. Enter **Admin** as your **User Name**, and then click **Login**.
   Notes: Until you set a password, you can log in as **Admin** with no Password. After your first login, you may want to change the Admin password.

Navigating the Orion Web Console

The Orion Web Console offers two primary methods of navigation: top-level web console tabs and view-level breadcrumbs.

Using Web Console Tabs

Depending on the modules installed, the SolarWinds Orion Web Console may display the following tabs:

Home

The **Home** tab provides a menu bar of links to views aiding you in general network management and monitoring. Information, like events and Top 10 lists, and technologies, like alerts, used to generate the views linked from the Home menu are generally available to all SolarWinds Orion modules. By default, the **Orion Summary Home** view displays when you click **Home** from any view in the web console.

Applications (SolarWinds SAM)

If you are viewing the Orion Web Console on a server on which SolarWinds Server & Application Monitor (SAM) is also installed, the **Applications** tab opens a menu of default views for some of the many different types of applications SolarWinds SAM can monitor. If SolarWinds SAM is installed without SolarWinds NPM, the **SAM Summary Home** view displays by default when you click **Home** from any web console view.

Databases (SolarWinds DPA)

The **Databases** tab opens to the Databases Summary view, and also provides menu items for links to the SolarWinds thwack Community. The Databases Summary view provides a customizable dashboard style view of database performance across your organization.

The web console provides an additional module-specific tab for each installed SolarWinds Orion module. These tabs offer access to views and tools specific to the module added. For more information about additional modules, see www.solarwinds.com.

Using and Disabling Web Console Breadcrumbs

As you navigate web console views, your location is recorded as a series of links, or breadcrumbs, to the views you have opened.

Each breadcrumb offers the following navigation options:

- Clicking a breadcrumb opens the corresponding view directly.
- Clicking **>** next to a breadcrumb opens a clickable list of all other views at the same navigation level in the web console. For example, if you are on a Node Details view, clicking **>** displays a list of other monitored nodes.

Note: Only the first 50 monitored nodes, listed in alphanumeric order by IP address, are displayed.

Customizing Web Console Breadcrumbs

Dropdown breadcrumb lists are customizable, as shown in the following steps.

To customize the items in a breadcrumb dropdown:

1. Click **>** at an appropriate level in a breadcrumb to open the dropdown.
2. Click **Customize this list**.
3. Select a criterion from the menu, and then click **Submit**.
   Note: All items in the customized list will be identical for the selected criterion.

Disabling Web Console Breadcrumbs

To ensure access is appropriately restricted for account limited users, you may want to disable breadcrumbs, as indicated in the following procedure.

To disable web console breadcrumb navigation:

1. Log on to your Orion server using an account with administrative access.
2. Open **web.config** (default location **C:\Inetpub\SolarWinds**) for editing.
3. In the **<appsettings>** section, locate the following setting:

   <add key="DisableBreadCrumbs" value="false"/>

4. Change **"false"** to **"true"**, as follows:

   <add key="DisableBreadCrumbs" value="true"/>

5. Save **web.config**.
   Note: If you run the Configuration Wizard after editing this setting, your changes may be overwritten.

Customizing the Databases Summary View

You can customize the Database Summary view to include only the resources or subviews that are important to you as shown in the following procedure.

To customize the Databases Summary View:

1. Click the **Customize Page** link on the Databases Summary page.
2. To change the title of the page, enter a new name in the **Name** field, and then click **Update**.
3. To add a subview that can be accessed from tabs on the left:
    a. Check the **Enable left navigation** box.
    b. Click the **Add tab** on the left.
    c. Enter a name for the tab in the **Tab Name** field.
    d. Click **Browse** next to the tab Icon, and select an appropriate icon for this tab.
    e. Click **Update**.
    f. You can now add further tabs, or proceed as below.
4. To change the width of a column, enter the width in pixels in the **Width** field beneath the column.
5. To add a column, click **Add New Column**.
6. To add a resource, repeat the following steps for each resource:
    a. Click **+** next to the column in which you want to add a resource.
    b. Check all resources you want to add, and then click **Add Selected Resources**.

    Notes:

    - Use the **Group by:** field on the left to limit the resource list or use the **Search** field at the top to locate specific resources.
    - Resources already in your view are not selected on this page. It is, therefore, possible to pick duplicates of resources you are already viewing.

- Several options on the Add Resources page are added to the list of resources for a page, but the actual configuration of a given map, link, or code is not added until the page is previewed.

7. To delete a resource from a column, select the resource, and then click **X** next to the resource column to delete the selected resource.
8. To copy a resource in a column, select the resource, and then click the copy icon next to the resource column to delete the selected resource.
9. To move a resource to another column or tab, click **Move to a different tab**, select the new column, and then click **Move Resource**.
10. To change the location of a resource within the column, use the up and down arrows to move them.
11. To enable NOC view, select Enable NOC view mode.

    Note: NOC View Mode enables you to customize web console views for optimal display on large network operations center screens. With NOC View enabled, a web console view cycle through its network monitoring resources for continually updated, shared viewing.

12. To limit the objects that can be displayed on this view, click **Edit** in **View Limitations**.
13. Click **Preview** to view your configuration in a new window.
14. When you are satisfied with your configuration, click **Done**.

Customizing the DPA Database Instance Details View

You can customize the DPA Database Instance Details view to include only the resources or subviews that are important to you as shown in the following procedure.

To customize the DPA Database Instance Details view:

1. Click the **Customize Page** link on the DPA Database Instance Details page.
2. To change the title of the page, enter a new name in the **Name** field, and then click **Update**.

3. To add a subview that can be accessed from tabs on the left:
    a. Check the **Enable left navigation** box.
    b. Click the **Add tab** on the left.
    c. Enter a name for the tab in the **Tab Name** field.
    d. Click **Browse** next to the tab Icon, and select an appropriate icon for this tab.
    e. Click **Update**.
    f. You can now add further tabs, or proceed as below.
4. To change the width of a column, enter the width in pixels in the **Width** field beneath the column.
5. To add a column, click **Add New Column**.
6. To add a resource, repeat the following steps for each resource:
    a. Click **+** next to the column in which you want to add a resource.
    b. Check all resources you want to add, and click **Add Selected Resources**.

    Notes:

    - Use the **Group by:** field on the left to limit the resource list or use the **Search** field at the top to locate specific resources.
    - Resources already in your view are not selected on this page. It is, therefore, possible to pick duplicates of resources you are already viewing.
    - Several options on the Add Resources page are added to the list of resources for a page, but the actual configuration of a given map, link, or code is not added until the page is previewed.
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8. To copy a resource in a column, select the resource, and then click the copy icon next to the resource column to delete the selected resource.
9. To move a resource to another column or tab, click **Move to a different tab**, select the new column, and then click **Move Resource**.

10. To change the location of a resource within the column, use the up and down arrows to move them.
11. To enable NOC view, select Enable NOC view mode.

    Note: NOC View Mode enables you to customize web console views for optimal display on large network operations center screens. With NOC View enabled, a web console view cycle through its network monitoring resources for continually updated, shared viewing.

12. To limit the objects that can be displayed on this view, click **Edit** in **View Limitations**.
13. Click **Preview** to view your configuration in a new window.
14. When you are satisfied with your configuration, click **Done**.

DPA View Limitations

Integrating SolarWinds DPA and an Orion platform products grants users the following additional view limitations. View limitations restricts the information available in a view to specific objects or database instances.

Single Database Instance

Limit the account to information about a single database instance.

Group of Database Instances

Limit the account to information about a group of database instances.

Database Instance Name Pattern

Limit the account to information about a group of database instances with similar database instance names.

You can choose the database instance or name pattern when you click **Continue** after you select the account limitation for the user account.

Exporting Views to PDF

Many views in the Orion Web Console may be exported directly to portable document format (.pdf). Views that may be exported display **Export to PDF** in the top right corner of the exportable view.

Note: The Export to PDF feature requires IIS Anonymous Access. Confirm that the IUSR_SERVERNAME user is in the local Users group on your Orion server.

To export a view to PDF:

1. Open the web console view to export, and then click **Export to PDF** in the top right corner of the view.
2. ***If you are prompted to save the .pdf file,*** click **Save**.
3. Navigate to an appropriate location, provide an appropriate file name, and then click **Save**.

Chapter 4: Getting Started

SolarWinds Database Performance Analyzer gives you the ability to quickly answer critical performance questions about your database. Database Performance Analyzer is the fastest and most effective solution for finding the root cause of database delays that impact business applications.

The information in this section helps you immediately begin using Database Performance Analyzer to identify and resolve the urgent performance problems in your database.

Morning Check-In

To check on the status of your database instances, go to the Databases Summary item on the Databases tab.

The Database Instances resource displays the list of database instances, with items that have critical issues or warnings displayed first.

- If you click on a database instance, a page with the *Database Instance Resources* is displayed.
- If you click on an application instance, the DB Performance tab in the Application Details view is displayed, again showing the *Database Instance Resources*.

Review the resources and in addition to critical issues or warnings, look for anything that looks our of the ordinary. For example, in the Instances with the Highest Wait Time resource, are there any bars or bar segments that are out of proportion with all of the others? If so, hover over the segment for additional information, and click on the instance below the chart to drill down and investigate further.

In the Greatest Upward Wait Time Trends resource, look for line segments that show extreme upward trends. Hover over the line segment for more information, and click on the instance below the chart to drill down and investigate further.

Check the Advisors from Databases with the Highest Wait Time resource. Messages are automatically displayed in descending order by time stamp. You

can sort the messages by severity, for example, only displaying Critical warnings. Hover over the message for more information. Click the message to go in to the DPA server for further analysis.

Note: The Advisors resource bubbles up query issues that might not be a problem right now, but could potentially become a problem.

Identifying a Blocking Problem

Regularly monitoring and identifying blocking issues is a best practice for any database administrator. A block simply means that one resource is holding a lock on a connection when another connection wants to read or write to it. Your environment determines the threshold of how much blocking constitutes a problem for your situation.

DPA makes it easy to monitor and investigate blocking problems.

1. From the Databases Summary tab, click on a Database Instance to display the Database Instance detail view (databases), or the DB Performance tab (applications).
2. Scroll to the **Blockers in the Last Hour** resource.
3. Review the information:

- **Blocking Sessions**—The total number of sessions that have blocked another session within the past hour.
- **Blocked Sessions**—The total number of sessions that have been blocked within the past hour.
- **Total Time Blocking**—The total amount of time sessions have blocked other sessions within the past hour. Keep in mind that one session can block multiple sessions simultaneously.
- **Total Time Blocked**—The total amount of time sessions were blocked within the past hour. Keep in mind that multiple sessions could be blocked by the same process at the same time.

4. If an issue is detected, click on the **Show Blocking Sessions** or **Show Block Sessions** link to see more detail.

Reports

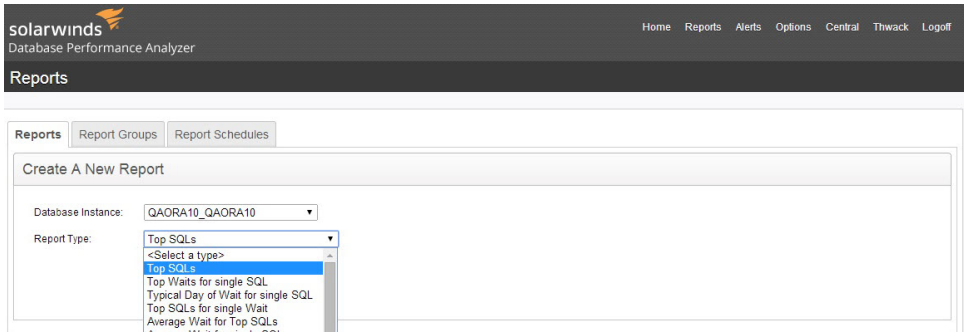
The most comprehensive reports for analyzing database performance are available in the DPA instance rather than from the Orion Web Console.

The following steps provide an example on how to set up reports in the DPA instance to automatically run daily and email details on your top three queries.

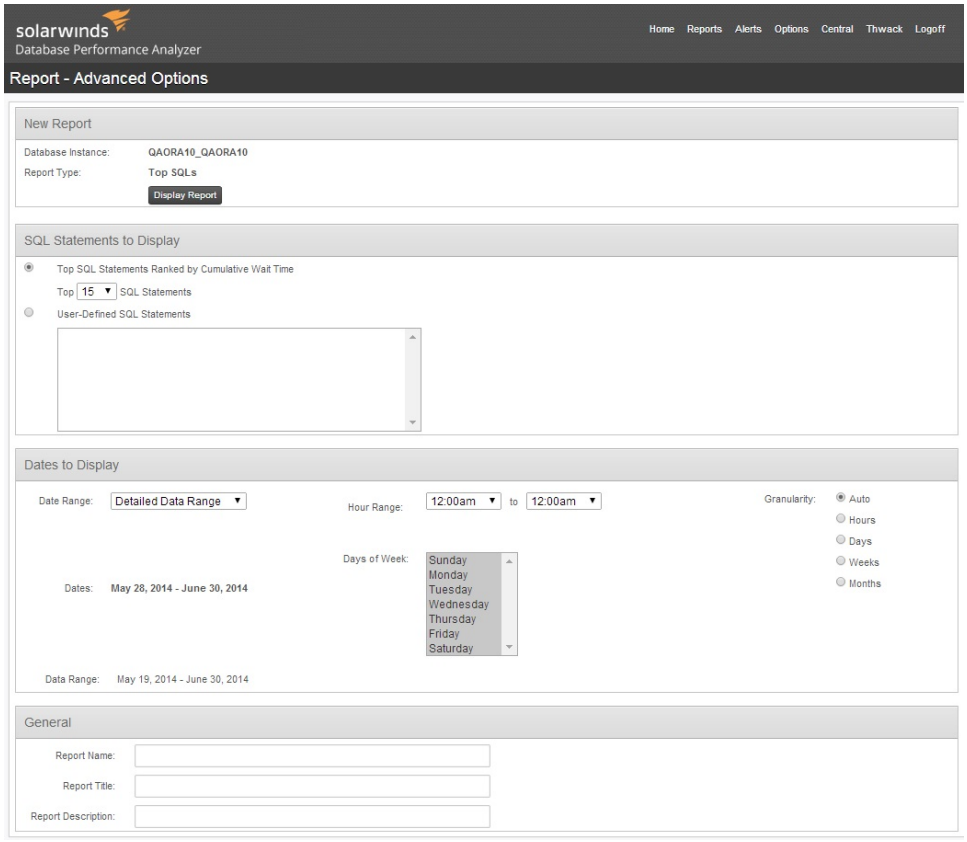
To setup a report:

1. Click the **Reports** link from the top of the Database Performance Analyzer main screen.

2. Select the database instance to use for the report and Report Type = Top SQLs, and then click **Report Options**.



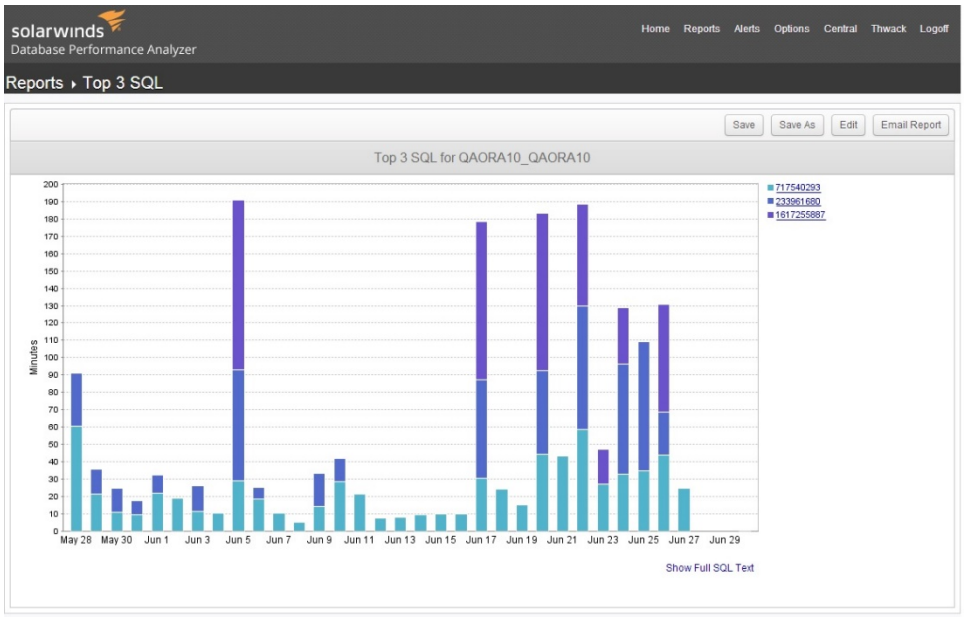
3. Choose **Top SQL Statements Ranked by Cumulative Wait Time** and the number of SQL statements to display.



4. Select information for the dates to display.

Note: Use **Ctrl** to select more than one day of the week.

5. Optionally enter a report name, title, and description.
6. Click **Display Report** near the top of the Report Creation Window to preview the report.



Click the **Save As** link with a report name to save the selections you have chosen for repeated use and scheduled distribution.

To schedule the report to be delivered automatically via email to you and your manager on a weekly basis:

1. From top right navigation, click **Options**.
2. From the Monitor Setup tab, click **Report Schedules**.
3. Create a report delivery schedule:
    a. Name the schedule and descriptive text for the email.
    b. Choose when to deliver the report – daily, weekly or monthly.
    c. Choose the report you want using the name created earlier.
    d. Add the recipients email addresses.

Note: Database Performance Analyzer has a default SMTP email configuration that works in most cases. If your network or firewall requires use of an internal SMTP server, see the Configuring SMTP Mail Server for Outgoing Email Knowledge Base article.

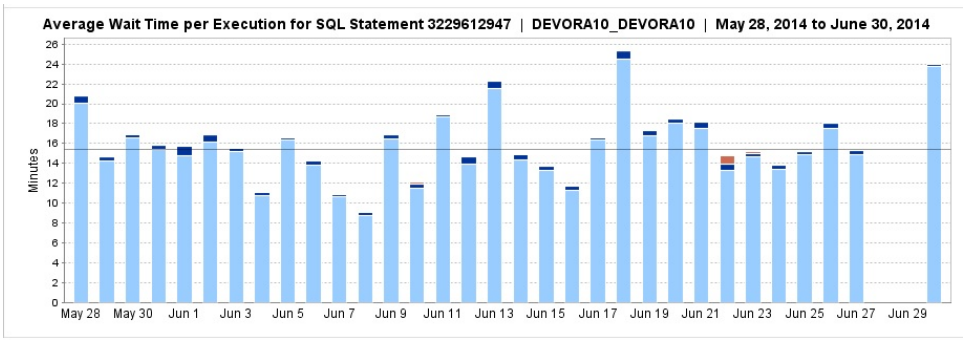
Setting Alerts

The most comprehensive alerts for analyzing database performance are available in the DPA instance rather than from the Orion Web Console. Database Performance Analyzer enables you to find the routine performance history at any time. You also can generate summary reports to watch queries of interest.

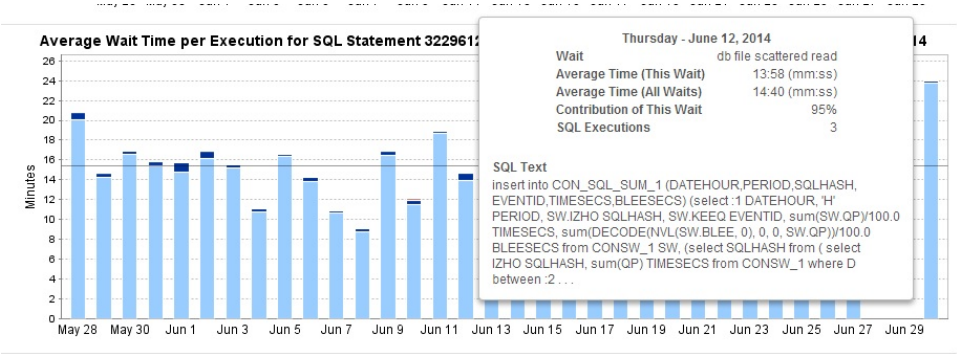
The following example establishes proactive alerts to watch for major increases in SQL response time and other metrics.

You will determine the average execution response time for each of your SQL queries, then set Alerts to warn you of significant deviations.

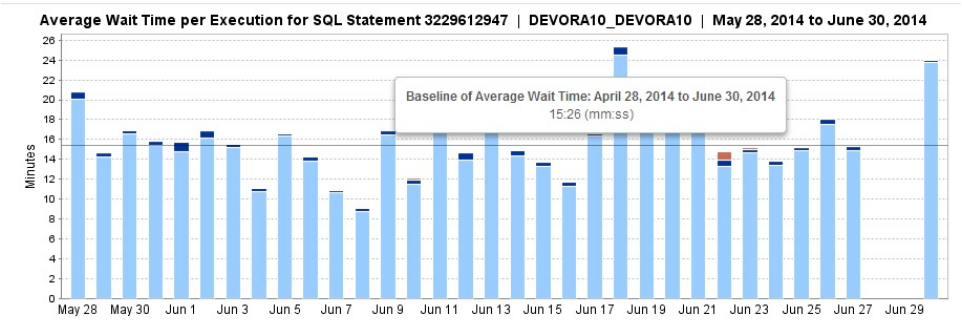
First, determine the normal execution time for your queries. See the View Historical Charts for SQL drop-down menu. Choose your first query and view the historical chart. You will see this chart with a black bar through the center located near the bottom on the page Historical Charts for SQL. This chart shows the average execution time for the SQL on each day, and the black bar denotes the average wait for this query across all the days displayed in the chart.



Rolling the cursor over each bar shows the popup window with details specific to this day including the Average time for this Wait Type/Event, plus the average time for all wait times on this day.



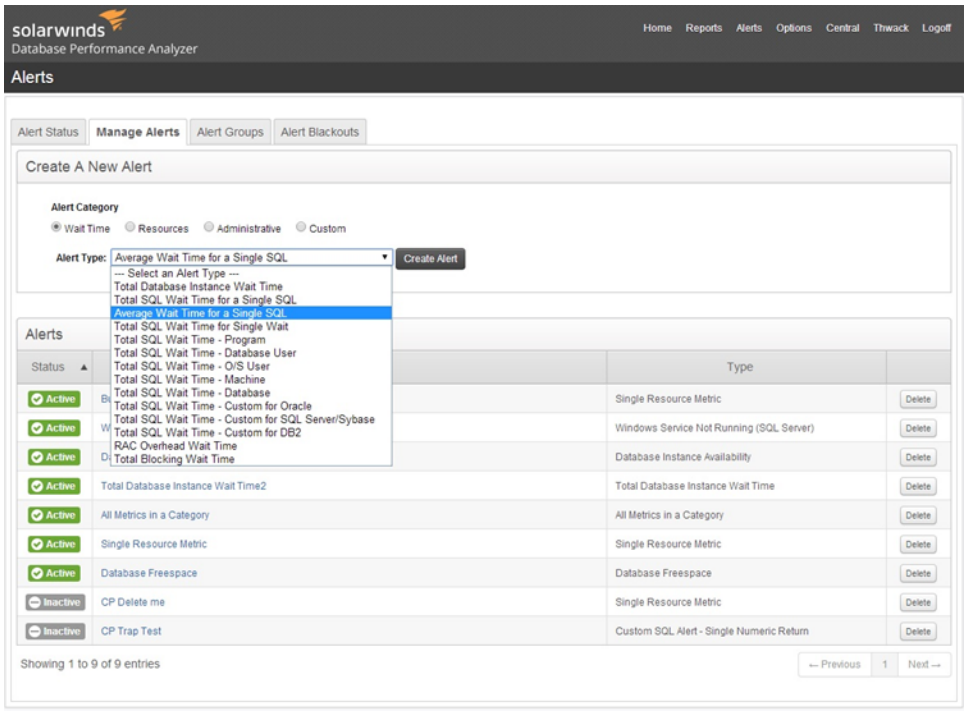
In this case, the average wait time was 13.58 milliseconds for the example in screen 14. Note that execution time, wait time, and response time all refer to the same concept of how long it takes for the database to return a response to the application.



The black bar shows an average time of 15:26 milliseconds wait for this query for all executions for the entire month. A best practice is to alert if the average response during a period is greater than 100% higher than this average during a sample period. In this case that would be roughly two seconds.

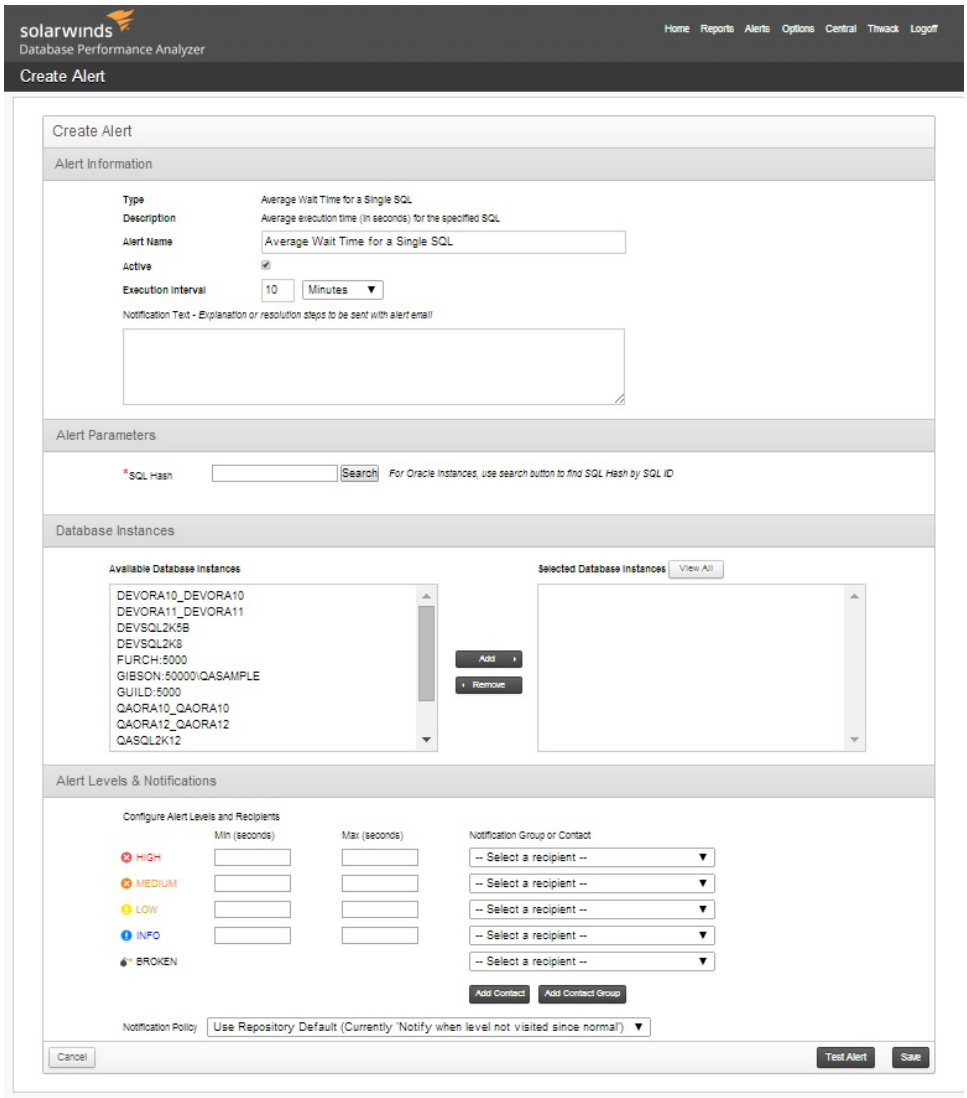
Action: For each of the three chosen SQL queries, estimate the typical response time. Choose a threshold, approximately twice as long, that you will use to set alerts for notification.

To create the alert, go to the top right navigation and click Alerts, then the Manage Alerts tab. From here, you can select the Alert Category and the Alert Type.



Click **Create Alert** and fill in the details to match your SQL query.

- Name the alert, give it a short description, and save it.
- Add your alert parameters.
- Choose the database instance and one of the three important SQL queries you selected in Step 1 as the target for your Alert.
- Set low and high level alert thresholds that are approximately twice as long as the typical execution times for your query.
- Run the alert every 10 minutes or more, allowing enough time to get valid samples and ensure you don’t get unnecessary warnings from a single slow execution.
- Make sure you test the alert (see Test button) to ensure it works properly and can send email messages from your network.



Notes:

- You can search for the query to alert on by name or hash value.
- The hash value is always returned from search, even when a named query is selected.
- The average wait time is specific to the execution interval, so if the interval is 10 minutes, Database Performance Analyzer will look at the average wait time for the SQL statement chosen for that 10 minute period and compare these values to your thresholds.

Alerts, like Trend Reports, are designed to provide instant use out-of-the-box and allow a high degree of customization to give you a tool tailored to your specific needs. Database Performance Analyzer is preconfigured with three types of alerts:

Wait Time Alerts

Wait time alerts are based on the amount of time users or applications waited on the database. For example, the Average SQL Wait Time alert fires when a SQL statement causes more wait time for the user than is acceptable. These alerts are critical because they ensure that you are only alerted when users and applications are being affected.

Database Administration Alerts

DB Admin alerts are typical alerts surrounding the health of the database system. For example, the Database Parameter Changes alert notifies you when any database parameter has changed. The Database Availability alert notifies you when the database instance is no longer accessible (e.g., crashed or the network has gone down).

Custom Alerts

Custom Alerts are user-specified queries that are run against the monitored database or the Database Performance Analyzer Repository. The query returns a number (or set of numbers) that may trigger an alert depending on user-defined threshold settings.

For example, you could enter a query to detect the number of canceled orders in the last ten minutes.

select count(*) from orderswhere status='CANCELLED' and date > sysdate – 10/1440;

You might also want to see which type of orders have high cancellation rates.

select order_type, count(*) from orders where status='CANCELLED' and date > sysdate – 10/1440 group by order_type;

Finally, you may want complex logic to determine if an order has truly been cancelled. In this case, you could write a function or procedure on the monitored database instance and call it.

- Oracle: select **mycustomfunction(parm1)** from dual
- SQL Server: select **mycustomfunction(parm1)**

- Sybase: **mycustomprocedure(parm1)**
- DB2: select **dbo.mycustomfunction(parm1)** from **SYSIBM.SYSDUMMY1**

These functions or procedures are written in the native database programming language such as PL/SQL for Oracle, T-SQL for MSSQL, T-SQL for Sybase, and IBM SQL for DB2.

For more information, see the Database Performance Analyzer Administrator Guide.

The Database Performance Analyzer Worksheet

As you begin using DPA, you can use the Database Performance Analyzer Worksheet to record results and help track important information.

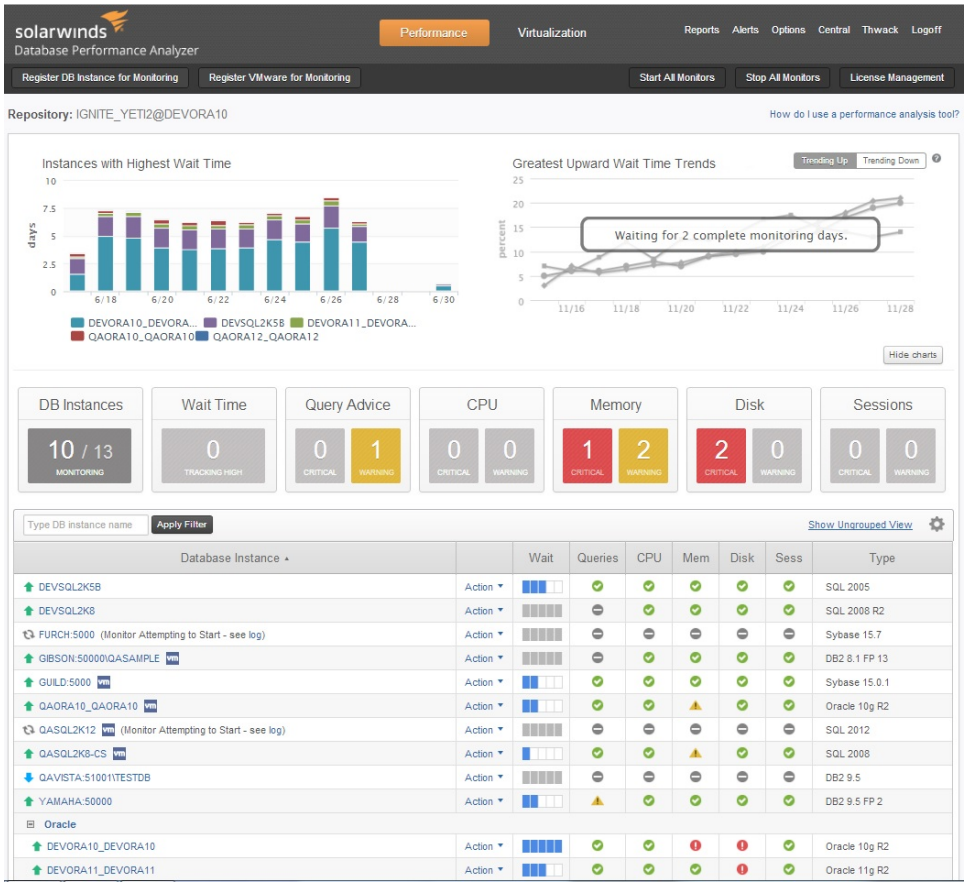
Results - Record your Action Steps		
Step 1	**Find Top 3 SQL Queries Causing User Delays**	
Action: Identify 3 SQLs by hash values		
SQL1		
SQL2		
SQL3		
Action: Assign Names to 3 SQLs Identified above		
SQL1		
SQL2		
SQL3		
Step 2	**Identify Critical System Resources**	
Action: Note System Resources that Correlate with Response Time Bottlenecks		
Resource 1		
Resource 2		
Resource 3		
Step 3	**Determine Specific Performance Bottlenecks**	
Action: Identify the Program generating most Wait Time		
Program		
Action: Identify Top Waits for each SQL Query		
SQL1 Name		% of Time
Wait1		
Wait2		
Wait3		
SQL2 Name		% of Time
Wait1		
Wait2		
Wait3		
SQL3 Name		% of Time
Wait1		
Wait2		
Wait3		
Step 4	**Current Bottlenecks**	
Action: Identify Current Queries and Wait Events		
Current Queries		
Current Wait Events		

Step 5	**Set Up Reporting**
Action: Create Scheduled Reports	
Report Name	
Delivery Schedule	
Delivery Recipients	
	Use Alerts for Proactive Notification of Peformance Delays
Action: Estimate Average Response Time	
SQL 1 Name	
Average Response Time	
SQL 2 Name	
Average Response Time	
SQL 3 Name	
Average Response Time	
Action: Create Alerts for Each SQL	
SQL 1 Name	
High Alert Threshold	
Low Alert Threshold	
Alert Name	
Alert Recipients	
SQL 2 Name	
High Alert Threshold	
Low Alert Threshold	
Alert Name	
Alert Recipients	
SQL 3 Name	
High Alert Threshold	
Low Alert Threshold	
Alert Name	
Alert Recipients	

Performing Advanced Analysis

Once you have mastered the basics of Database Performance Analyzer, you will want to expand your skills and explore the more advanced features that Database Performance Analyzer provides.

After at least one database instance has been registered for monitoring, Database Performance Analyzer displays the main screen.



The main screen shows a table of the database instances being monitored. Notice that different database types can be seen on the same screen. Monitoring can be started or stopped from this screen.

Instance Groups

You can also group monitored databases using the Instance Groups feature. The repository above has databases groups defined as the various database types, but you can define any mix of groups. Database Performance Analyzer will automatically group Oracle RAC instances. Other databases are not automatically grouped.

Monitoring

Once monitoring is started it will always monitor if possible. In other words, it is not necessary to restart the Database Performance Analyzer monitor if either the repository instance or the monitored database instance was unavailable for a

period of time. Monitoring will automatically resume when both are available again.

Logs

Clicking the Log link for a database (found on the Home page in the Action drop-down) shows the Database Performance Analyzer monitoring log for the associated database. This is helpful to determine why the Database Performance Analyzer monitor cannot start for some reason, or data seems to be missing. The Log Viewer link (found on the Options page under the Support tab) shows the log entries for all monitored database instances.

More Features

Other buttons and links on the page include:

- Register Database for Monitoring: Registers another database instance to be monitored by Database Performance Analyzer.
- Register VMware for Monitoring: Monitors VMware environments. You can purchase this companion product called Database Performance Analyzer VM. Database Performance Analyzer will show VMware performance information in addition to database instance performance data.
- Alerts: Allows you to create, edit, and views alerts.
- License Management: Allows you to add Database Performance Analyzer trial or permanent license keys.
- Options: Allows you to manage Database Performance Analyzer settings and advanced features such as custom Database Performance Analyzer users.
- Reports: Allows you to create and edit custom reports.

Chapter 5: Configuring Database Performance Analyzer Settings

The options available on the DPA settings page in the Orion Web Console change based on if you have integrated with SolarWinds DPA.

If you have set up DPA integration

If you have set up SolarWinds DPA Orion integration, the following links are available:

- **Configure Database Instances and Client Applications**–Launch the integration wizard where you can manage your database, node, and application relationships.
- **Set Up DPA Integration**–Remove integration or set up integration with a different SolarWinds DPA server.
- **License Allocation**–Open a web browser to your SolarWinds DPA instance to view the details on the number of licenses you have and how they are allocated.
- **License Management**–Open a web browser to your SolarWinds DPA instance to view your license keys and take action to manage them.
- **DPA thwack forum**–Open the Database Performance Analyzer page in the SolarWinds thwack community forum.

If you have not set up DPA integration

If you have not set up SolarWinds DPA Orion integration, but have installed the SolarWinds DPA Orion integration module, the following links are available:

- **Set Up DPA Integration**–Enter your SolarWinds DPA server information and credentials, and then launch the DPA integration wizard to manage your database and application relationships.

- **Learn how to install and configure DPA before integrating with the Orion platform**–Access the SolarWinds information page for Database Performance Analyzer.
- **DPA thwack forum**–Open the Database Performance Analyzer page in the SolarWinds thwack community forum.

Chapter 6: Managing Web Accounts

Orion Web Console user accounts, permissions, and views are established and maintained with the Account Manager in the **Settings** page.

Note: To prevent issues with web console accounts, your SQL Server should not be configured with the **no count** connection option enabled. The **no count** option is set in the **Default connection options** area of the **Server Properties > Connections** window of SQL Server Management Studio.

Creating New Accounts

New web console user accounts may be created by web console administrators.

Note: To maintain administrative privileges, Windows individual and group user accounts must be defined in the same domain as the SolarWinds server to which they are given access.

To create a new user account:

1. Log in to the Orion Web Console as an administrator, and then click **Settings** in the top right of the web console.
2. Click **Manage Account** in the Accounts grouping of the Orion Website Administration page, and then click **Add New Account**.
3. Select the type of account you want to add, and then click **Next**.
4. ***If you selected Orion individual account,*** complete the following steps:
    a. Provide a **User Name** and a **Password** for the Orion individual account.
    b. Confirm the password, and then click **Next**.
    c. Define user settings and privileges, as appropriate. For more information, see Editing User Accounts.
5. ***If you selected Windows individual account,*** complete the following steps:

a. Provide the **User Name** and **Password** for a user that has administrative access to your Active Directory or local domain.

b. In the Search for Account area, enter the **User name** of the Active Directory or local domain user for whom you want to create a new web console account, and then click **Search**.

c. In the Add Users area, select the users for whom you want to create new web console accounts, and then click **Next**.

6. ***If you selected Windows* group account,** complete the following steps:

a. Provide the **User Name** and **Password** for a user that has administrative access to your Active Directory or local domain.

b. In the Search for Account area, enter the **Group name** of the Active Directory or local domain group for which you want to create a new web console account, and then click **Search**.

c. In the Add Users area, select the users for whom you want to create new web console accounts, and then click **Next**.

When the new account is created, the Edit User Account view displays, showing all configurable account options. For more information about editing account settings, see Editing User Accounts.

Editing User Accounts

The Edit User Account page provides options for configuring web console user accounts. On the Edit User Account page, administrators can disable an account, set an account expiration date, grant administrator and node management rights, set user view limitations, define a default menu bar, and set several other defaults defining how a user account views and uses the Orion Web Console.

Note: To reset a password, click **Change Password** at the bottom of the page.

The following sections and procedures detail the configuration of user accounts.

- User Account Access Settings
- Setting Account Limitations
- Defining Pattern Limitations

User Account Access Settings

The following procedure is a guide to setting user account access.

To edit a user account:

1. Log in to the Orion Web Console as an administrator.
2. Click **Settings** in the top right of the web console.
3. Click **Manage Accounts** in the User Accounts grouping of the Orion Website Administration page.
4. Select the account that you want to edit, and then click **Edit**.
5. Set **Account Enabled** to **Yes** or **No**, as appropriate.

   Note: Accounts are enabled by default, and disabling an account does not delete it. Account definitions and details are stored in the Orion database in the event that the account is enabled at a later time.

6. ***If you want the account to expire on a certain date,*** click **Browse** (**…**) next to the **Account Expires** field, and then select the account expiration date using the calendar tool.

   Note: By default, accounts are set to **Never** expire. Dates may be entered in any format, and they will conform to the local settings on your computer.

7. ***If you want to allow the user to remain logged-in indefinitely,*** select **Yes** for the **Disable Session Timeout** option.

   Note: By default, for added security, new user accounts are configured to timeout automatically.

8. ***If you want to grant administrator rights to the selected account,*** set **Allow Administrator Rights** to **Yes**.

   Notes:

   - Administrator rights are not granted by default, but they are required to create, delete, and edit accounts. User accounts without administrator rights cannot access Admin page information.
   - Granting administrator rights does not also assign the Admin menu bar to a user. If the user requires access to Admin options, they must be assigned the Admin view.

9. ***If you want to allow the user to manage nodes directly from the Orion Web Console, set Allow Node Management Rights to Yes.***

   Note: By default, node management rights are not granted.

10. ***If you want to allow the user to edit and manage reports directly from the Orion Web Console, set Allow Report Management Rights to Yes.***

    Note: By default, report management rights are not granted.

11. ***If you want to allow the user to customize views,*** set **Allow Account to Customize Views** to **Yes**.

    Note: By default, customized view creation is not allowed. Changes made to a view are seen by all other users that have been assigned the same view.

12. Designate whether or not to **Allow Account to Clear Events and Acknowledge Alerts**.
13. Select whether or not to **Allow Browser Integration**.

    Note: Browser integration can provide additional functionality, including access to right-click menu options, depending on client browser capabilities. Right-click menu options also depend on installing the SolarWinds Desktop Toolset and running the Toolset Integration Tray application on each client computer.

14. ***If you want to enable audible alerts through the client browser,*** select a sound from the **Alert Sound** list.

    Note: By default, sounds are stored in the **Sounds** directory, located at **C:\Inetpub\SolarWinds\NetPerfMon\Sounds**. Sounds in **.wav** format that are added to this directory become available as soon as the Edit User Account page refreshes.

15. Provide the maximum **Number of items in the breadcrumb list**.
    Note: If this value is set to **0**, all available items are shown in breadcrumb dropdown lists.

Setting Account Limitations

Account limitations may be used to restrict user access to designated network areas or to withhold certain types of information from designated users. The

following procedure sets user account limitations.

To set user account limitations:

1. Log in to the Orion Web Console as an administrator.
2. Click **Settings** in the top right of the web console, and then click **Manage Accounts** in the Accounts group of the Orion Website Administration page.
3. ***If you want to limit an individual user account,*** complete the following steps:

    a. On the Individual Accounts tab, check the account you want to limit.

    b. Click **Edit**.

    c. Click **Add Limitation** in the Account Limitations section.

    d. Select the type of limitation to apply, and then click **Continue**.

    Notes:

    - Because Orion NetFlow Traffic Analyzer (NTA) initially caches account limitations, it may take up to a minute for account limitations related to Orion NTA to take effect in Orion NTA.
    - Account limitations defined using the Account Limitation Builder display as options on the Select Limitation page. Account limitations can be defined and set using almost any custom properties.

    e. Define the limitation as directed on the Configure Limitation page that follows. For more information about defining pattern-type limitations, see Defining Pattern Limitations.

4. ***If you want to limit an group account,*** complete the following steps:

    Note: Limitations applied to a selected group account only apply to the group account and not, by extension, to the accounts of members of the group.

    a. On the Groups tab, check the group account you want to limit.

    b. Click **Edit**.

    c. Click **Add Limitation** in the Account Limitations section.

    d. Select the type of limitation to apply, and then click **Continue**.

Notes:

- Because Orion NetFlow Traffic Analyzer (NTA) initially caches account limitations, it may take up to a minute for account limitations related to Orion NTA to take effect in Orion NTA.
- Account limitations defined using the Account Limitation Builder display as options on the Select Limitation page. Account limitations can be defined and set using almost any custom properties.

e. Define the limitation as directed on the Configure Limitation page that follows. For more information about defining pattern-type limitations, see Defining Pattern Limitations.

5. Click **Add Limitation** in the Account Limitations section.
6. Select the type of limitation to apply from the list, and then click **Continue**.

   Notes:

   - Account limitations defined using the Account Limitation Builder display as options on the Select Limitation page. Account limitations can be defined and set using almost any custom properties.
   - Because Orion NetFlow Traffic Analyzer (NTA) initially caches account limitations, it may take up to a minute for account limitations related to Orion NTA to take effect in Orion NTA.
   - Group limitations are not applied until after group availability is calculated.
7. Define the limitation as directed on the Configure Limitation page that follows. For more information about defining pattern-type limitations, see Defining Pattern Limitations.

When limiting user access to certain network objects, try using limitations to specific objects and avoid pattern limitations. Validating pattern limitations is more time and performance consuming.

DPA Account Limitations

Integrating SolarWinds DPA and an Orion platform products grants users the following additional account limitations:

Single Database Instance

Limit the account to information about a single database instance.

Group of Database Instances

Limit the account to information about a group of database instances.

Database Instance Name Pattern

Limit the account to information about a group of database instances with similar database instance names.

You can choose the database instance or name pattern when you click **Continue** after you select the account limitation for the user account.

Defining Pattern Limitations

Pattern limitations may be defined using **OR**, **AND**, **EXCEPT**, and **NOT** operators with _ and * as wildcard characters. The following examples show how to use available operators and wildcard characters:

Note: Patterns are not case sensitive.

- **foo** matches only objects named "foo".
- **foo_** matches all objects with names consisting of the string "foo" followed by only one additional character, like **foot** or **food**, but not **seafood** or **football**.
- **foo*** matches all objects with names starting with the string "foo", like **football** or **food**, but not **seafood**.
- ***foo*** matches all objects with names containing the string "foo", like **seafood** or **Bigfoot**.
- ***foo* OR *soc*** matches all objects containing either the string "foo" or the string "soc", including **football**, **socks**, **soccer**, and **food**.
- ***foo* AND *ball*** matches all objects containing both the string "foo" and the string "ball", including **football** but excluding **food**.
- ***foo* NOT *ball*** matches all objects containing the string "foo" that do not also contain the string "ball", including **food** but excluding **football**.

- ***foo* EXCEPT *ball*** matches all objects containing the string "foo" that do not also contain the string "ball", including **food** but excluding **football**.

You may also group operators using parentheses, as in the following example.

(*foo* EXCEPT *b*) AND (*all* OR *sea*) matches **seafood** and **footfall**, but not **football** or **Bigfoot**.

Chapter 7: Troubleshooting

Use the following information to troubleshoot common issues.

Setting up the integration

Cannot find or connect to the SolarWinds DPA server.

- Ensure that the SolarWinds DPA server is running and can be accessed from the SolarWinds Orion server.
- Use the SolarWinds DPA server's fully qualified domain name or IP address.
- Ensure that the appropriate ports are open between the two systems. See Checking Prerequisites for port information.

Cannot find my Databases tab or view.

You may have hidden these in your Customize Navigation & Look settings or the Databases tab may not be enabled in the Database Performance Analyzer settings.

Creating relationships

A relationship was not created automatically when a node or application corresponds to a database instance.

- Ensure that the host name or IP address of the database instance in SolarWinds DPA corresponds with the host name or IP address of the node or application in the Orion platform product.
- Ensure that the application monitor is working correctly in SolarWinds SAM and is monitoring the correct database instance.
- Review Preparing SAM applications for integration.

Navigating between SolarWinds DPA and an Orion platform product

Receive an access denied error when navigating to SolarWinds DPA.

You must logon to SolarWinds DPA with your SolarWinds DPA credentials.

Resources

No data is available on SolarWinds DPA-specific resources.

- Ensure that the SolarWinds DPA server is available and accessible from the SolarWinds Orion server.
- No data may be available for that time period. Verify that the information exists in SolarWinds DPA.
- Verify that your integration settings are correct in **Settings > Database Performance Analyzer**.

Appendix A: General Reference

This appendix provides reference material for your integration.

- Preparing SAM applications for integration
- How the Integration Wizard works

Preparing SAM applications for integration

The integration wizard looks for database instances to relate to each other for each of these application templates:

- AppInsight for SQL
- SQL Server 2005-2008 Performance (SQL)
- SQL Server 2005-2008 Performance (WMI)
- SQL Server 2012 Performance (SQL)
- SQL Server 2012 Performance (WMI)
- Oracle Database
- Sybase ASE
- IBM DB2
- MySQL

You can help the wizard successfully integrate more database instances by modifying some of your applications. These steps assume that you have correctly assigned applications to nodes and that all components use the correct credentials and database instance name.

To ensure that all component monitors use the correct credentials and database instance name:

1. Edit the application monitor, and select all component monitors.
2. Click **Assign Credentials**, and ensure that the correct credentials are used.
3. With all of the components still connected, click **Multi Edit**.
4. Enter the database instance name.

SQL Server 2005-2008 Performance (SQL)

1. Edit the application monitor, and open the settings for the *User Connections* component monitor.
2. Override the *SQL Server Instance* property with the instance name or leave it blank.

SQL Server 2005-2008 Performance (WMI)

1. Edit the application monitor, and open the settings for the *Buffer Manager: Buffer cache hit ratio* component monitor.
2. Override the *Instance* property with the instance name or leave it blank.

SQL Server 2012 Performance (SQL)

1. Edit the application monitor, and open the settings for the *User Connections* component monitor.
2. Override the *SQL Server Instance* property with the instance name or leave it blank.

SQL Server 2012 Performance (WMI)

1. Edit the application monitor, and open the settings for the *Buffer Manager: Buffer cache hit ratio* component monitor.
2. Override the *Instance* property with the instance name or leave it blank.

Oracle Database

1. Edit the application monitor, and open the settings for the *Available free space (MB)* component monitor.
2. Set the *Destination Point Type* property to `SERVICE_NAME` or `SID` according to the monitored Oracle database.
3. Override the *Destination Point Name* property with the service name or SID.

Sybase ASE

1. Edit the application monitor, and open the settings for the *Transactions/sec* component monitor.
2. Override the *Connection String* property with the connection string for the Sybase database.

IBM DB2

1. Edit the application monitor, and open the settings for first the *Database Used Space (MB)* component monitor.
2. Override the *Connection String* property with the connection string for the DB2 database.

MySQL

1. Edit the application monitor, and open the settings for first the *Total Memory Used (MB)* component monitor.
2. Override the *Connection String* property with the connection string for the MySQL database.

How the Integration Wizard works

The Integration Wizard retrieves database instance information from SolarWinds DPA and attempts to create relationships between SolarWinds DPA database instances and SolarWinds Orion nodes and applications.

While the integration wizard uses similar criteria to match SolarWinds DPA database instances to SolarWinds Orion nodes and applications, each match type uses slightly different methods.

Relating Nodes

Database instances and nodes are related using IP address or host name matches.

For IP address matching, the node's *IPAddress* property is compared to the database instance's *IP* or *Host* property. The database instance name can also be included in the *IPAddress* property, such as 192.168.110.132/*dbi_instance.*

For host name matching, the node's *SysName* and *DNS* properties are compared to the database instance's *Host* property. The database instance name can also be included in these properties, such as lab/*dbi_instance.*

If there are multiple nodes with the same IP address or host name, nodes monitored by an agent are removed from the potential relationships list. If there are multiple nodes left afterward, you are prompted to choose a node in the integration wizard.

Relating Applications

After nodes are related to database instances, all applications associated with that node are available as a database client. Application matches are refined further with different matching techniques based on the type of application. AppInsight for SQL and multiple template-based applications are supported. AppInsight uses database instance name matching. Template-based applications use database instance name matching and component settings matches.

AppInsight for SQL

If a database instance name in SolarWinds DPA matches exactly with a database instance name in AppInsight for SQL, that relationship is mapped.

If a database instance name in SolarWinds DPA matches with a database instance name preceded by the default names for SQL instances, that relationship is also mapped.

SQL Server Performance

Relating SolarWinds DPA database instances to database instances monitored by an SQL Server Performance application uses the same database instance name matching as AppInsight for SQL.

The different templates also use the following components to create matches:

- SQL Server 2005-2008 Performance (SQL) - User Connections
- SQL Server 2005-2008 Performance (WMI) - Buffer Manager: Buffer cache hit ratio
- SQL Server 2012 Performance (SQL) - User Connections
- SQL Server 2012 Performance (WMI) - Buffer Manager: Buffer cache hit ratio

If a component is not set, the default template setting is used.

Oracle

If the *DestinationPointType* or *DestinationPointName* component matches the SolarWinds DPA database instance *SID* or *ServiceName* property, a match is made.

Sybase, MySQL, and IBM DB2

The ports are extracted from the connection strings, and are then compared.