Database Performance Analyzer Integration Module

Version 11.2
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Introduction to the DPA Integration Module

To learn about the DPA Integration Module (DPAIM), see the following topics:

- View DPA data in the Orion Platform
- Architecture of the DPA Integration Module
- DPA and SAM integration with DPAIM
- DPA and SRM integration with DPAIM
- Azure SQL support with DPAIM
View DPA data in the Orion Platform

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

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

For information about installing DPAIM and setting up the integration, see Integrate DPA with Orion Platform products.

After the integration set up is complete, the SolarWinds Orion server saves the relationships made between DPA database instances and nodes, and applications monitored by the Orion Platform. The Orion server uses a service account created during integration set up to poll the DPA server for information and uses the relationships stored in the Orion database to display the related node or application. The Orion server requests information from the DPA server on the SSL port 8124 and provides links to DPA in the Orion Web Console that open to more detailed information. Users are automatically logged in to DPA with the service account credentials unless they already have a session open to DPA. No data from the Orion server is displayed in DPA.

Integrating adds a Databases section to the Orion Web Console to monitor your databases. The Databases Summary view is a dashboard displaying database performance across your organization, whether the databases are monitored in SolarWinds DPA or in an Orion Platform product.

Integrated database information is most helpful when used with SolarWinds Server & Application Monitor. This guide draws on many examples assuming you installed SolarWinds SAM.
Architecture of the DPA Integration Module

DPA 1
- DPA Repository
- DPA Server
- Original DPA Website
- Reads DPA Data

DPA 2
- DPA Repository
- DPA Server
- Original DPA Website
- Reads DPA Data

DPA N
- DPA Repository
- DPA Server
- Original DPA Website
- Reads DPA Data

ORION
- ORION Server
- ORION Repository
- ORION Website
- Reads DPA Data

More detailed data is opened in original DPA Website.
DPA and SAM integration with DPAIM

Integrating DPA with SolarWinds Server & Application Monitor (SAM) provides specific features only available when DPA and SAM are integrated.

You can create two types of relationships between applications monitored by SAM and database instances monitored by DPA:

- A SAM application and a DPA database instance are monitoring the same application.
- A SAM application queries a DPA database instance.

The first relationship type adds a DB Performance tab to the Application Details view for quick access to DPA widgets.

The second relationship type populates data to the following widgets:

**Applications Using All My Databases**

This widget displays all applications monitored by SAM that query database instances monitored by all your DPA servers.

**Applications Using My Databases**

This widget displays the applications monitored by SAM that query database instances monitored by the selected DPA server.
Applications Using My Databases

<table>
<thead>
<tr>
<th>Application</th>
<th>Database Instance</th>
<th>Instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>SharePoint Server 2013 on lab-dem-spiis01.demo.lab</td>
<td>MSSQLSERVER on lab-dem-sql-02.demo.lab</td>
<td>1</td>
</tr>
<tr>
<td>Windows Scheduled Tasks on lab-dem-spiis01.demo.lab</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>SharePoint Server 2013 on lab-dem-spapp01.demo.lab</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>SQL Server 2012 Reporting Services on lab-dem-sql-02.demo.lab</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Microsoft IIS on lab-dem-spiis01.demo.lab</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Microsoft IIS on lab-dem-spapp01.demo.lab</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Applications Using This Database

This widget is on the Database Instances view. It tells you which applications are querying this database instance.

<table>
<thead>
<tr>
<th>Application</th>
<th>Instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Directory 2008 R2 - 2012 Services and Counters</td>
<td>1</td>
</tr>
<tr>
<td>Microsoft IIS</td>
<td>1</td>
</tr>
</tbody>
</table>

Database Response Time (Client)

This widget is on the Application views for applications that query databases monitored by DPA. Click a client application in the "Applications Using..." widgets to access these views. For example, in the image above, click Microsoft IIS.

The Database Response Time (Client) widget tells you how long your application is waiting on the database and why. The histogram breaks down the amount of time your application waited into discreet wait types, which identify what the database was doing. It often identifies resource contention. The icon next to each wait type provides a description of what this wait type means, common solutions, and the role within your organization most capable of this work.
Database Response Time (Client)

Queries from DPAORA10 to:

- DPAORA10_DPAORA10

Top Waits on All Queries to DPAORA10_DPAORA10 for Last 24 Hours

Jul 18, 2016, 2:30 pm - Jul 18, 2016, 4:30 pm

Zoom 1h 12h 24h

WAIT TIME IN SECONDS

2:30 PM 3:00 PM 3:30 PM 4:00 PM 4:30 PM

WAIT TIME IN SECONDS

0 sec 1 sec 2 sec 3 sec 4 sec

- Memory/CPU
- log file sync
- db file sequential read
- latch: library cache
- control file sequential read

Powered by
Database Performance Analyzer
DPA and SRM integration with DPAIM

Integrating DPA 11.0 and later with SolarWinds Storage Resource Monitor (SRM) 6.4 and later provides specific features only available when DPA and SRM are integrated. You can see contextually relevant information on storage objects related to databases monitored by DPA, and correlate storage health and performance with the databases mapped to the storage objects.

After you define relationships between database instances and storage objects, click My Dashboards > Databases > DB Storage Summary. DPA and SRM integration populates data to the following widgets:

**Storage Used By All Databases**

This widget displays all storage objects monitored by SRM related to database instances monitored by all your DPA servers.

<table>
<thead>
<tr>
<th>Storage Used By All Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPASQL2K15-CTP3 on + Unknown node</td>
</tr>
<tr>
<td>DPA-CENT-MYSQL56-ENT:3306 on + Unknown node</td>
</tr>
<tr>
<td>CDC_ESX_FC_VMFS03</td>
</tr>
<tr>
<td>CDC_ESX_VDIG_VMFS0</td>
</tr>
<tr>
<td>CDC_ESX_VMFS1</td>
</tr>
<tr>
<td>CDC_iSCSI_TEST_VMFS01</td>
</tr>
<tr>
<td>CDC_iSCSI_VMFS01</td>
</tr>
<tr>
<td>CDC_iSCSI_VMFS02</td>
</tr>
<tr>
<td>CDC_iSCSI_DMZ_VMFS01</td>
</tr>
<tr>
<td>CDC_iSCSI_VMFS04</td>
</tr>
<tr>
<td>DPASQL12MULTINS\INSTANCE1 on + Unknown node</td>
</tr>
<tr>
<td>DPASQL2K14-CS on + Unknown node</td>
</tr>
</tbody>
</table>

**Storage Objects By Performance Risk**

This widget displays storage objects monitored by SRM where the related database instances contain one or more warnings or critical issues that may affect performance.
Storage Objects By Capacity Risk

This widget displays storage objects monitored by SRM where the related database instances contain one or more warnings or critical issues that may affect capacity.
### Storage Used By This Database

This widget is on the DB Storage tab of the Database Instance view. It tells you which storage objects are mapped to this database instance.
### Storage Used By This Database

<table>
<thead>
<tr>
<th>STORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC_ESX_FC_VMFS03</td>
</tr>
<tr>
<td>CDC_ESX_VDIG_VMFS0</td>
</tr>
<tr>
<td>CDC_ESX_VMFS1</td>
</tr>
<tr>
<td>CDC_iSCSI_TEST_VMFS01</td>
</tr>
<tr>
<td>CDC_iSCSI_VMFS01</td>
</tr>
<tr>
<td>CDC_iSCSI_VMFS02</td>
</tr>
<tr>
<td>CDC_iSCSI_DMZ_VMFS01</td>
</tr>
<tr>
<td>CDC_iSCSI_VMFS04</td>
</tr>
</tbody>
</table>

#### IOPS Performance Per LUN

This widget provides a chart comparing input/output operations per second (IOPS) for the current LUN with the other LUNs in the same storage pool.
**Latency Performance Per LUN**

This widget charts the latency for the current LUN compared with the other LUNs in the same storage pool.
Azure SQL support with DPAIM

When you are using DPA to monitor Azure SQL databases, the following widgets provide data about sessions, storage, and resource usage.

**Azure SQL DB Performance Statistics from Database Performance Analyzer**

For Azure SQL database instances, this resource displays information from SolarWinds DPA about the available DTUs (Database Transaction Units) and other resources being used. A DTU represents a combination of CPU, memory, data I/O and transaction log I/O. Microsoft places limits on these resources based on what service tier a database is in. When a database exceeds its limit for any resource, Microsoft restricts throughput, which slows performance.
Storage Statistics from Database Performance Analyzer

For Azure SQL database instances, this resource displays storage statistics from SolarWinds DPA.

Session Statistics from Database Performance Analyzer

This resource displays the current status of sessions from SolarWinds DPA.
# Sessions Statistics from Database Performance Analyzer

**APR 25, 2017 - APR 26, 2017**

<table>
<thead>
<tr>
<th>STATISTIC NAME</th>
<th>Zoom</th>
<th>1h</th>
<th>6h</th>
<th>12h</th>
<th>VALUE FROM LAST INTERVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Worker Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 %</td>
</tr>
<tr>
<td>Active Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 sessions</td>
</tr>
<tr>
<td>Blocked Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 sessions</td>
</tr>
<tr>
<td>Max Session Percent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0 %</td>
</tr>
</tbody>
</table>

Time Range: 12:00 AM to 4:00 AM

**Data Source:**

- **Max Worker Percent:** The graph shows a varying trend with peaks and troughs. The value for the last interval is 1%.
- **Active Sessions:** The graph indicates no active sessions with the last interval showing 0 sessions.
- **Blocked Sessions:** The graph shows no blocked sessions, with the last interval being 0 sessions.
- **Max Session Percent:** The graph shows no sessions and the last interval has 0%.

**Note:** The table and graph provide insights into the database performance over the specified time frame.
Integrate DPA with Orion Platform products

To integrate DPA with the Orion Platform, see the following topics:

- DPAIM integration overview
- Requirements for the DPA Integration Module
- Prepare SAM applications for DPAIM integration
- Set up the DPA Integration Module
- Manage relationships to database instances, applications, and storage objects
- DPAIM relationship detection
- DPAIM Discovery Central

DPAIM integration overview

You can integrate any Orion Platform product with multiple instances of SolarWinds DPA. The 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.

1. Check the Requirements for the DPA Integration Module.
2. Install the DPA Integration Module on your SolarWinds Orion server:
   - DPAIM is automatically installed with SolarWinds SAM 6.2.1 and later. If you have SAM, continue with the next step.
     - To install SAM, use the SolarWinds Orion Installer. DPAIM is automatically installed with SAM, but is not included in the list of products.
   - To install DPAIM without SAM:
     a. Log in to the Customer Portal and download the Database Performance Analyzer Integration Module installer.
       - You must download the DPAIM installer to install DPAIM without SAM. DPAIM is not included in the list of products available in other product installers.
     b. Use the SolarWinds Orion Installer to install DPAIM. You can install DPAIM alone or with other Orion Platform products.
3. Set up the DPA Integration Module.
4. Establish relationships between databases, applications, and storage objects.

Requirements for the DPA Integration Module

SolarWinds DPA and Orion Platform integration requires DPA 11.1 or later to be installed.
DPAIM can be installed alone or with other Orion Platform products.

- DPAIM is installed automatically when you install SolarWinds SAM.
- To install DPAIM without SolarWinds SAM, use the SolarWinds Orion Installer.

SolarWinds does not recommend installing an additional polling engine on the DPA server.

If you are installing DPAIM as a standalone module, you can install it on the same server as DPA. However, if you plan to install DPAIM with other Orion Platform product (such as NPM or SAM), we recommend that you install DPAIM and other Orion Platform products on a different server than the DPA server.

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 Prepare SAM applications for DPAIM integration for more information.

Port and browser requirements are listed below. For other requirements, see the Orion Platform requirements.

**Port requirements**

In addition to the port requirements necessary for SolarWinds DPA and any other Orion Platform products, integration requires the following ports:

### DPA server

<table>
<thead>
<tr>
<th>PORT</th>
<th>PROTOCOL</th>
<th>SERVICE OR PROCESS</th>
<th>DIRECTION</th>
<th>ENCRYPTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>443 (cloud) or 8124 (on-premises)</td>
<td>TCP (HTTPS)</td>
<td>Windows: Ignite PI Service, Linux: java/tomcat</td>
<td>Inbound, Outbound</td>
<td>TLS 1.0, TLS 1.1, TLS 1.2</td>
<td>This is the default port number of your DPA website and jSWIS proxy. This port must be open to receive data from the SolarWinds Orion server.</td>
</tr>
</tbody>
</table>

### Orion server

<table>
<thead>
<tr>
<th>PORT</th>
<th>PROTOCOL</th>
<th>SERVICE OR PROCESS</th>
<th>DIRECTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>17776</td>
<td>TCP</td>
<td>SolarWinds Information Service</td>
<td>Inbound, Outbound</td>
<td>This port must be open to access the SolarWinds Information Service API (notifications).</td>
</tr>
<tr>
<td>PORT</td>
<td>PROTOCOL</td>
<td>SERVICE OR PROCESS</td>
<td>DIRECTION</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>------------------------------------------------------</td>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>17777</td>
<td>TCP</td>
<td>SolarWinds Information Service</td>
<td>Inbound Outbound</td>
<td>This port must be open for all Orion Platform product traffic.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PORT</th>
<th>PROTOCOL</th>
<th>SERVICE OR PROCESS</th>
<th>DIRECTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>17778</td>
<td>TCP</td>
<td>SolarWinds Information Service</td>
<td>Inbound Outbound</td>
<td>This port must be open to access the SolarWinds Information Service API.</td>
</tr>
</tbody>
</table>

Browser requirements

- Microsoft Edge
- Microsoft Internet Explorer 11

Do not use IE compatibility view. It may cause SolarWinds DPA to function incorrectly.

- Mozilla Firefox: latest stable version
- Google Chrome: latest stable version

Next steps

- If necessary, install DPAIM:
  - DPAIM is automatically installed with SolarWinds SAM 6.2.1 and later.
  - To install DPAIM without SAM, use the DPAIM stand-alone installer.
- When DPAIM is installed, set up the integration.

Prepare SAM applications for DPAIM integration

The Database Performance Analyzer Integration Module looks for database instances to relate to each other for the following 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
MySQL 5.7.9 and later (Windows)
MySQL 5.7.9 and later (Linux/UNIX)
MySQL 5.7.8 and earlier (Windows)
MySQL 5.7.8 and earlier (Linux/UNIX)
MySQL Replication (Windows)
MySQL Replication (Linux/UNIX)

You can help successfully integrate more database instances by modifying some of your applications. These steps assume you assigned applications to nodes and all components use the correct credentials and connection settings.

**AppInsight for SQL**

To ensure that all component monitors use the correct credentials and connection settings:

1. Edit the application monitor, and select all component monitors.
2. Click Assign Credentials, and make sure that the correct credentials are used.
3. With all of the components still connected, click Multi Edit.
4. This step only applies to the SQL Server application templates: 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.

MySQL Replication
1. Edit the application monitor, and open the settings for first the Slave Replication Status component monitor.
2. Override the Script Arguments property with:
   - Windows: C:\Program Files\MySQL\MySQL Server 5.6\bin\mysql.exe, root, your_password
   - Linux: /usr/bin/mysql root your_password

Set up the DPA Integration Module

You need the following information to integrate SolarWinds DPA with the Orion Platform:

- DPA server host name or IP address
- DPA port number
- DPA administrator credentials
- Orion server host name or IP address
- DPA server display name

If DPAIM was installed automatically with SAM, it is listed in the Orion Web Console footer only after you complete the integration. If you install DPAIM using the stand-alone installer, it is listed in the Orion Web Console footer immediately after installation.

Set up the Integration Module in Settings
1. Log in as an administrator. Non-administrator accounts cannot view the Manage DPA Servers page.
2. Click Settings > All Settings.
4. Click Manage DPA Servers.
5. Click Add DPA Server.
6. Enter the required information, and click Test Connection.

   If the test fails and a new field for the SolarWinds Orion server address displays, enter your SolarWinds Orion server address using the fully qualified domain name or IP address.

7. Click Integrate.

What happens during the integration setup?

1. The Orion server tests the connection and credentials to ensure it can communicate with the SolarWinds DPA server.
2. The Orion server uses the DPA administrator credentials to create service accounts on the DPA server, which are then saved to the Orion server.
3. The Orion server tests the connection and credentials again, and enables single sign-on.
4. The Orion server sets up federation so it can retrieve information from the SolarWinds Orion database and the DPA repository database.
5. The Orion server creates relationships between nodes, applications, and database instances from SolarWinds DPA.

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

Manage relationships to database instances, applications, and storage objects

After you set up the SolarWinds DPA integration, the Orion Platform automatically creates relationships between nodes and applications in the SolarWinds Orion server and the database instances monitored by the SolarWinds DPA server.

For SRM integration, you must manually create the relationships between database instances and storage objects. See the Access Relationship Management section below for instructions.

The Orion Platform can integrate with multiple instances of SolarWinds DPA. After 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.

If you integrate with a DPA server that has Central Server mode enabled, you must integrate with its remote DPA servers manually to see their data in the Orion Web Console.

The Orion Platform retrieves database instance information from SolarWinds DPA and attempts to build relationships 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
- Settings specific to database instances, such as instance name, SID, or port number

⚠️ You can modify relationships after integrating a DPA server. All relationships are deleted if you remove the integration.

For more information about how the wizard relates objects and database instances, see [DPAIM relationship detection](#).

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

### Access Relationship Management

1. Click Settings > All Settings.
2. Under Product Specific Settings, click Database Performance Analyzer.
3. Click Manage Relationships.

#### Database Instances tab

You can define, edit, or delete relationships using the Actions column.

Click Add DPA Database Instance to open SolarWinds DPA and register a new monitored database instance.

#### Client Applications tab

You can edit or unlink relationships using the Actions column.

Click Define New Relationship to relate an application from an Orion node in a client role to one or more database instances.

⚠️ You can relate one application to multiple database instances:

```
  App1     DB 1
  |         |
  v         v
      DB 2
```

Each database instance is related to only one application:

```
  App1     DB 1
  |         |
  v         v
      ❌ App 2
```

#### Storage Objects tab

You can edit or unlink relationships using the Actions column.

Click Define New Relationship to relate database instances to storage objects (LUNs only).
DPAIM relationship detection

When you integrate, the Orion Platform retrieves information from SolarWinds DPA and attempts to create relationships between SolarWinds DPA database instances and SolarWinds Orion nodes and applications.

Relating nodes

Database instances and nodes are related by matching IP addresses or host names.

For IP address matching, the IPAddress property of the node is compared to the IP or Host property of the database instance. 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 SysName and DNS properties of the node are compared to the Host property of the database instance. 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 remaining, you are prompted to choose a node on the relationship management page.

Relating applications

After nodes are related to database instances, the Orion Platform finds the supported SAM database applications associated with each node. 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 match based on the database instance name and component settings.

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 a 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 compared.

DPA IM Discovery Central

Discovery Central, available in Settings, provides a centralized overview of the types and number of network objects you are monitoring with your currently installed Orion platform products.

The Database Performance Analyzer Integration section displays the number of available database instances mapped to SolarWinds Orion objects.

- Click Manage DPA Servers to integrate the server with one or more DPA servers.
- Click Manage Relationships to create relationships between nodes, applications, and database instances.
DPA data in the Orion Web Console

The following topics provide information about DPA views, alerts, and reports in the Orion Web Console:

- Viewing DPA data in the Orion Web Console
- DPA alerting in the Orion Platform
- DPA reporting in the Orion Platform
- Database instances in the AppStack environment with DPAIM
- Customize a DPAIM view and apply limitations
- DPAIM account limitations
Viewing DPA data in the Orion Web Console

After you have [integrated DPA with the Orion Platform](https://www.solarwinds.com/products/orion-dpa), you can view information from DPA in the Orion Web Console. Click My Dashboards > Databases > Databases Summary.

- If you integrated multiple DPA servers, the Databases Summary view displays resources that gather information from all of the servers.
- If you integrated one DPA server, the Databases Summary view displays resources with information from that server.

Review the resources and in addition to critical issues or warnings, look for anything that looks out 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 the others? If so, point to the segment for additional information, and click 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. Point to the message for more information. Click the message to open SolarWinds DPA for further analysis.

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

The Advisors resource displays query issues that may not be urgent, but could become a problem later.

The (All) Database Instances resource displays the list of database instances, with items that have critical issues or warnings on top.

- Click a database instance to see the Database Instance Details page. There you can see statistics from DPA, advisors, response time, the Mini-AppStack resource, and more.
- Click an application instance to see the DB Performance tab in the Application Details view. There you can see the same resources from the corresponding Database Instance Details page.

DPA alerting in the Orion Platform

When you use [DPAIM](https://www.solarwinds.com/products/orion-dpa) to integrate DPA with the Orion Platform, you can create alerts based on database instances monitored by DPA. In those alerts, you can set trigger conditions based on properties of the database instances. You receive a notification when the alert is triggered.

You can filter the scope of DPA alerts based on:

- Database Instance
- Database Instance ID
- Monitor Status
- Overall Alarm Level
You can trigger DPA alerts based on:

- Database Instance ID
- Monitor Status
- Overall Alarm Level
- Status
- Type

**Alert example**

This example shows how to create an alert when a certain database instance reaches a critical status.

1. Click Alerts & Activity > Alerts.
2. Click Manage Alerts.
3. Click Add New Alert.
5. Select Database Instance in the I want to alert on list.

**The scope of alert**

1. For the scope of the alert, select Only following set of objects.
2. Under All objects where, select Instance in the Select field list.
3. Click Select Objects.
4. Select a database instance, and click Select.

![](image)

**The actual trigger condition**

1. Under Trigger alert when, click Browse All Fields in the Select field list.
2. Click Database Instance in the list on the left.
3. Select Status in the list on the right, and click Select.

4. Select Critical in the last list on the right.

5. Continue with the Add New Alert wizard.

DPA reporting in the Orion Platform

When you use DPAIM to integrate DPA with the Orion Platform, you can select DPA resources when creating a report in the Orion Platform.

1. Click Reports > All Reports.
2. Click Manage Reports.
4. In the Group By list, select Feature.
5. Select Databases in the list of features.
6. Select a DPA resource, and click Select and Continue.
7. Select the objects to report on, and click Add to Layout.
8. Continue with the Add Report wizard.
Database instances in the AppStack environment with DPAIM

SolarWinds SAM provides an Application Stack (or AppStack) with an interactive visual map that displays a detailed view of your environment. This map helps you identify the root cause of performance and availability issues.

When you use DPAIM to integrate DPA with the Orion Platform, the AppStack environment includes a category called Database Instances.

Assess database instances in the AppStack

Use AppStack to assess the overall health of your database instances and to troubleshoot specific and related problems.

1. Click My Dashboards > Home > Environment.
2. Expand the Database Instances category. The objects listed first are the highest priority.
3. Click an object to highlight related objects and gray out unrelated objects.

4. Click Spotlight to remove unrelated objects. This image shows a relationship between the database instance and an application:

5. To investigate further, click the selected object.
6. The selected object opens to the relevant Database Instance Details page.

Mini-AppStack widget

The AppStack view is also available at the database instance level, and only shows the relationships for that instance. This view is called the Mini-AppStack.

1. Click My Dashboards > Databases > Databases Summary.
2. Under All Database Instances, click the name of an instance.
3. On the Database Instance Details page, locate the AppStack Environment resource.

Customize a DPAIM view and apply limitations

View limitations restrict the information available for a specific view.

1. Click My Dashboards > Databases > Databases Summary.
2. Click Customize Page in the upper right.
3. To change the title of the page, edit the Name field, and then click Update.
4. To add a subview that can be accessed from tabs on the left:
   a. Select the Enable left navigation check box.
   b. Click Add Tab.
   c. Enter a name in the Tab Name field.
   d. Click Browse next to Tab Icon, and select an icon for this tab.
   e. Click Update.
   f. You can add more tabs, or continue.
5. To change the width of a column, enter the width in pixels in the Width field beneath the column.
6. To add a column, click Add New Column.
7. 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. Select the resources to add, and click Add Selected Resources.
8. Use the icons next to each column to delete, clone, or move the selected resources.
9. To cycle the web console view through its database instance monitoring resources for continually updated and shared viewing, select Enable NOC view mode.
10. Click Preview to view your configuration in a new window.
11. Click Done.

Restrict access by applying view limitations

View limitations restrict the information available in a view for specific objects or database instances.

1. Log in to the Orion Web Console as an administrator.
2. Click My Dashboards > Databases > Databases Summary.
3. Click Customize Page in the upper right.
4. Under View Limitations, click Edit.
5. Scroll to the bottom of the list, and select a limitation type for the view. Integrating SolarWinds DPA and an Orion Platform product grants you the following additional view limitation types:
   - Single Database Instance
   - Group of Database Instances
   - Database Instance Name Pattern
6. Click Continue.
7. Select a single database instance, group of database instances, or enter a name pattern.
8. Click Submit.

DPAIM account limitations

Account limitations restrict the information available for a specific user.

Integrating SolarWinds DPA and an Orion Platform product grants you the following additional account limitations:

- Single Database Instance
- Group of Database Instances
- Database Instance Name Pattern

Restrict access by applying user account limitations

1. Log in to the Orion Web Console as an administrator.
2. Click Settings > All Settings.

4. Edit an individual or group account.
   a. Click Add Limitation in the Account Limitations section.
   b. Select the type of limitation to apply, and click Continue.
   c. Define the limitation, and click Submit.
      The limitation will be added to the Edit Account page.

5. Click Submit.

When the user logs back in, the account respects the limitations applied to it.
## Troubleshooting DPAIM issues

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>RESOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot find or connect to the SolarWinds DPA server.</td>
<td>• Make sure the SolarWinds DPA server is running and accessible from the SolarWinds Orion server.</td>
</tr>
<tr>
<td></td>
<td>• Use the fully qualified domain or IP address of the SolarWinds DPA server.</td>
</tr>
<tr>
<td></td>
<td>• Ensure that the correct ports are open between the two computers. See <a href="#">Requirements for the DPA Integration Module</a> for port information.</td>
</tr>
<tr>
<td>Cannot find the Databases dashboard.</td>
<td>1. Click Settings &gt; All Settings.</td>
</tr>
<tr>
<td></td>
<td>3. Make sure that Databases_TabMenu is present, and that it contains Databases Summary.</td>
</tr>
<tr>
<td>A relationship was not created automatically when a node or application corresponds to a database instance.</td>
<td>• Make sure 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.</td>
</tr>
<tr>
<td></td>
<td>• Make sure the application monitor is working correctly in SolarWinds SAM and is monitoring the correct database instance.</td>
</tr>
<tr>
<td></td>
<td>• For more information, see <a href="#">Prepare SAM applications for integration</a>.</td>
</tr>
<tr>
<td>Access denied error when navigating to SolarWinds DPA from another Orion Platform product.</td>
<td>• You must log in to SolarWinds DPA with your SolarWinds DPA credentials.</td>
</tr>
<tr>
<td>No data is available on SolarWinds DPA-specific resources.</td>
<td>• Make sure the SolarWinds DPA server is running and accessible from the SolarWinds Orion server.</td>
</tr>
<tr>
<td></td>
<td>• No data may be available for that time period. Verify that the information exists in SolarWinds DPA.</td>
</tr>
<tr>
<td></td>
<td>• Verify your integration settings are correct.</td>
</tr>
<tr>
<td>ISSUE</td>
<td>RESOLUTION</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Response time from the Orion Web Console to the DPA server takes longer than five seconds. | • Ping from the Orion server to the DPA server.  
• Check the firewall settings on each sever.  
  ○ Ports 80, 17776, 17777, and 17778 opened on the Orion server.  
  ○ Ports 8123 and 8124 on the DPA server.  
• Check if the Ignite PI service is running on the DPA server. |
| A red error message displays in the DPAIM.                           | • There may be an issue with your service accounts. Try removing the integration, and integrate again.  
  ⚠️ You will lose all of your custom relationships between DPA and the Orion Platform. |
|                                                                      | • An unexpected error occurred. Contact [SolarWinds support](https://www.solarwinds.com/support)                                             |
| No data is available for the database instance, or it does not appear to be monitored correctly. | • There may be an issue with your license. Check your licenses on the DPA server.  
• Monitoring stopped in DPA.  
• You have recently registered DB instances in DPA and there is no data yet. Allow time for DPA to poll data.  
• There may be an issue with your Orion limitations.  
  ○ Check the account limitations for the affected user.  
  ○ Check the view limitations for the affected page. |
| The Orion Platform displays sample data instead of real data.       | • Integration is not established yet. See [Set up the DPA Integration Module](https://www.solarwinds.com/support) for more information. |