



INSTALLATION AND UPGRADE GUIDE

# Database Performance Analyzer

Version 12.1

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# DPA installation overview

To install SolarWinds DPA, complete the following tasks.

 For information about upgrading DPA, see [Upgrade DPA](#)

- 1. Prepare for the installation. Complete the [preflight checklist](#) to plan for the installation and prepare your environment.
- 2. Install DPA. You can install DPA on any of the following platforms:
  - [Install DPA on Windows](#)
  - [Install DPA on Linux or Unix](#)
  - [Install DPA on Azure Marketplace](#)
  - [Launch DPA on Amazon Web Services](#) (with subscription licensing)
- 3. Create the repository database. The repository database stores the performance data that DPA collects. You can create the repository on any of the following database types:
  - [Create a SQL Server repository database](#)
  - [Create an Oracle repository database](#)
  - [Create a MySQL repository database](#)
  - [Create an Azure SQL Database repository database](#)

After installation, complete the following tasks to begin monitoring database instances:

- 1. Register database instances. [Register each database instance](#) you want to monitor.

 You can monitor database instances without licenses during the 14-day trial period. After the trial period, you must allocate a license for each database instance to continue monitoring.
- 2. Purchase and allocate licenses.
  1. Evaluate how many [licenses of each type](#) you need.
  2. Purchase licenses from your sales representative, and download them from the [Customer Portal](#).

 If you have not yet created a SolarWinds account, see [Access the Customer Portal](#) to create an account.
  3. [Allocate licenses](#) to each database instance.

- 
3. Begin monitoring database instances.
- See the [DPA Getting Started Guide](#) for a walk-through of performing common tasks in DPA. For example:
- [Investigate an application performance problem](#)
  - [Identify blocking sessions and deadlocks](#)
  - [Create an alert to monitor SQL statement execution time](#)
  - [Create a report to track wait types for a single SQL statement](#)
-

# DPA installation preflight checklist

Before installing SolarWinds DPA, complete the pre-installation checklists below. These checklists help you:

- Obtain the required credentials.
- Verify that system requirements are met.
- Prepare your environment.

## Plan for the installation

- |                          |   |  |
|--------------------------|---|--|
| <input type="checkbox"/> | 1. Review release notes.                            | Review Database Performance Analyzer <a href="#">release notes</a> in the <a href="#">Success Center</a> .   |
| <input type="checkbox"/> | 2. Identify the server where DPA will be installed. | Make sure the server: <ul style="list-style-type: none"><li>• Is powerful enough to handle the load of the potential number of monitored database instances that you will register. See the <a href="#">DPA server requirements</a>.</li><li>• Has network connectivity to the DPA repository and each of the monitored database instances that you will register. DPA can be installed on the same server as the repository instance, although it is not required or recommended.</li></ul> |
| <input type="checkbox"/> | 3. Identify or install the repository database.     | Make sure: <ul style="list-style-type: none"><li>• The repository is not installed in a critical production database instance.</li><li>• The repository database and server meet the <a href="#">repository database requirements</a>.</li><li>• You have credentials with the <a href="#">required privileges</a>.</li></ul>  |
| <input type="checkbox"/> | 4. Create a Customer Portal account.                | To download SolarWinds products and licenses, you need a SolarWinds Customer Portal account. To create your SolarWinds account, see <a href="#">Access the Customer Portal</a> .   |
| <input type="checkbox"/> | 5. Obtain admin credentials for the DPA server.     | SolarWinds recommends using the Local Administrator Account for installation. Make sure you have local admin server credentials for the DPA server. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"><p> The Local Administrator Account is not the same as a domain account with local admin rights. A domain account is subject to your domain group policies.</p></div>            |
| <input type="checkbox"/> | 6. Schedule the installation.                       | Set up the maintenance window, preferably during off-peak hours.   |

- 
- |  |   |
|--|---|
| <input type="checkbox"/> 7. Notify your company. | Send a message to your company about the installation schedule and maintenance window. If you need additional help, contact and allocate staff to be available. |
|--|---|
- 

## Prepare the environment

Before installation, prepare the SolarWinds environment:

- 
- |   |   |
|---|---|
| <input type="checkbox"/> 1. Build the environment.                | Prepare the servers based on your deployment size and <a href="#">system requirements</a> .   |
| <input type="checkbox"/> 2. Run all OS updates.                   | Before installation, <b>run all OS updates</b> on all servers. As you install, if an OS update runs, your system may reboot and require you to restart the installation process. These include Microsoft Windows, Linux, and others as specified in requirements.       |
| <input type="checkbox"/> 3. Open ports according to requirements. | For your server ports and firewall, open the <a href="#">required ports</a> . DPA uses these ports to send and receive data.  |
| <input type="checkbox"/> 4. Check for antivirus software.         | Determine if any antivirus software is installed on the server or servers where you plan to install. To ensure the installation goes smoothly, exclude the DPA directory. On Windows, the default DPA directory is:<br><br><code>C:\Program Files\SolarWinds\DPA</code> |
- 

## Installation gotchas

If you are installing SolarWinds DPA on a **Linux** server, be sure to:

- Set the `JAVA_HOME` variable.
- Make sure the installation path has read, write, and execute permissions.

# DPA requirements

See the following requirements for installing SolarWinds DPA and monitoring databases.

- [Port requirements](#)
- [DPA server requirements](#)
- [DPA repository database requirements](#)
- [Supported Web browsers](#)
- [Database versions you can monitor](#)
- [MySQL requirements](#)

## DPA port requirements

Review and open ports on the DPA server to support communication to and from SolarWinds DPA.

PORT	PROTOCOL	SERVICE OR PROCESS	DIRECTION	ENCRYPTION	DESCRIPTION
8123	HTTP	Windows: Ignite PI Service  Linux: java/tomcat	Inbound  Outbound		Default HTTP port for web server
8124	HTTPS	Windows: Ignite PI Service  Linux: java/tomcat	Inbound  Outbound	TLS 1.0 TLS 1.1 TLS 1.2	Default HTTPS port for web server
8127	TCP	Windows: Ignite PI Service  Linux: java/tomcat	Internal		Internal Tomcat shutdown port
80	HTTP	Windows: Ignite PI Service  Linux: java/tomcat	Inbound  Outbound		Default HTTP port for web server (Amazon Machine Images only)

PORT	PROTOCOL	SERVICE OR PROCESS	DIRECTION	ENCRYPTION	DESCRIPTION
443	HTTPS	Windows: Ignite PI Service  Linux: java/tomcat	Inbound Outbound	TLS 1.0 TLS 1.1 TLS 1.2	Default HTTPS port for web server (Amazon Machine Images only)

## DPA server requirements

You can install SolarWinds DPA on any physical or virtual Windows or Linux server that supports the Java Runtime Environment (JRE) version 11.

You can also launch DPA in the cloud:

- In the Amazon Web Services (AWS) Marketplace from an Amazon Machine Image (AMI).
  - The AMI contains a DPA server on Linux with no repository.
  - [Subscription licensing](#) is available.
- In the Azure Marketplace.
  - The DPA virtual machine contains a DPA server on Windows and a built-in Microsoft SQL Server database instance configured as the DPA repository.
  - [Individual licenses](#) must be purchased.

## Self-managed DPA server requirements

The CPU, RAM, and disk space requirements depend on the number of database instances you plan to monitor.

If you register VMware, increase the CPU and RAM requirements by 50%.

**i** These are estimates. They are based on testing done with an average of 2-3 active sessions per monitored instance. If you are monitoring busy instances with an average of more than 2-3 active sessions, please adjust accordingly.

HARDWARE / SOFTWARE	1 - 20 MONITORED DB INSTANCES	21 - 50 MONITORED DB INSTANCES	51 - 100 MONITORED DB INSTANCES	101 - 250 MONITORED DB INSTANCES*
CPUs	1	2	4	4
RAM dedicated to DPA	1 GB	2 GB	4 GB	8 GB
Disk space	2 GB minimum 4 GB recommended			

HARDWARE / SOFTWARE	1 - 20 MONITORED DB INSTANCES	21 - 50 MONITORED DB INSTANCES	51 - 100 MONITORED DB INSTANCES	101 - 250 MONITORED DB INSTANCES*
Operating System	<ul style="list-style-type: none"> <li>Windows Server 2019</li> <li>Windows Server 2016</li> <li>Windows Server 2012 R2</li> <li>Windows 10 (evaluation only)</li> <li>Linux</li> </ul>			
Operating System Architecture	64-bit			
Character sets	To support a multibyte language, the DPA server, repository, and monitored instances must be configured with the same character set.			

\* If you plan to monitor more than 250 database instances, consider using more than one DPA server and [linking the servers together](#).

## Requirements for an AWS DPA server

The minimum required AWS instance type for the DPA server AMI is t2.medium. Smaller instance types are not supported.

A t2.medium size instance is typically powerful enough to monitor 20 database instances. You might need a larger instance type to reliably monitor more than 20 database instances. A t2.medium size instance is typically powerful enough to monitor 20 database instances. You might need a larger instance type to reliably monitor more than 20 database instances.

## Requirements for an Azure DPA server

SolarWinds recommends two or more database throughput units (DTUs) per monitored database instance. See the [Azure SQL Database DTU Calculator](#) for more information.

The minimum required Azure tier is standard s0.

## DPA repository database requirements

The repository database stores the data collected by SolarWinds DPA. A supported database instance must be installed on the database server.

 Do not host the repository on a database instance that you plan to monitor, because this affects the performance of that instance.

## Supported database versions

DATABASE	EDITION	VERSION
Microsoft SQL Server	<ul style="list-style-type: none"> <li>Standard</li> <li>Enterprise</li> </ul>	<ul style="list-style-type: none"> <li>2017 (Windows or Linux)</li> <li>2016 SP2</li> <li>2014 SP2</li> <li>2012 SP4</li> </ul>
Azure SQL	Standard Service Tier or higher	V12
MySQL	<ul style="list-style-type: none"> <li>Community</li> <li>Enterprise</li> </ul>	<ul style="list-style-type: none"> <li>5.7.9</li> <li>5.6.10</li> <li>Amazon RDS for MySQL 5.7.9</li> <li>Amazon RDS for MySQL 5.6.10</li> <li>Aurora 5.6.10a</li> </ul> <p><b>Note:</b> MySQL 8.0 is <b>not</b> supported for a use as a DPA repository.</p>
Oracle	<ul style="list-style-type: none"> <li>Standard</li> <li>Enterprise</li> </ul>	<ul style="list-style-type: none"> <li>18.3.x (single tenant and multitenant)</li> <li>12.2 (single tenant and multitenant)</li> <li>12.1 (single tenant and multitenant)</li> <li>11.2</li> </ul>

### Notes:

- Although DPA will work with the Express editions of Oracle and SQL Server, SolarWinds does not officially support these editions for the repository because of the database size limits. If you need a free database for an evaluation, SolarWinds recommends using a MySQL database.
- You can use an Amazon Relational Database Service (RDS) for MySQL or Aurora instance as a repository.
- You can host a self-managed Oracle, SQL Server, or MySQL database on Amazon EC2 to use as your repository.
- If you choose Azure SQL as your repository, SolarWinds recommends two or more database throughput units (DTU) per monitored database instance. See the [Azure SQL Database DTU Calculator](#) for more information.

## Repository database server

If you install DPA on the same server as the repository database, the server must meet these requirements in addition to the [DPA server requirements](#). If you register VMware, increase the CPU and RAM requirements by 50%.

**i** These are estimates. They are based on testing done with an average of 2-3 active sessions per monitored instance. If you are monitoring busy instances with an average of more than 2-3 active sessions, please adjust accordingly.

HARDWARE / SOFTWARE	1 - 20 MONITORED DB INSTANCES	21 - 50 MONITORED DB INSTANCES	51 - 100 MONITORED DB INSTANCES	101 - 250 MONITORED DB INSTANCES
CPUs	2	2	4	4
Database cache available for DPA	4 GB	8 GB	8 GB	16 GB
Disk space	<p>The amount of disk space your repository uses is determined by the number of database instances you are monitoring and the activity level of each instance:</p> <ul style="list-style-type: none"> <li>• Low: 1 GB</li> <li>• Medium: 3 GB</li> <li>• High: 5 GB</li> </ul> <p><b>Example:</b> You are monitoring five low, three medium, and two high activity database instances.</p> $(5 \times 1 \text{ GB}) + (3 \times 3 \text{ GB}) + (2 \times 5 \text{ GB}) = 24 \text{ GB}$ <p>Reserve at least 24 GB to provide adequate disk space for this repository database.</p>			

**i** Repository scalability depends on many things, including the database vendor and configuration, the specifications of the repository server, other activity on the repository server, and the activity levels of the monitored database instances.

## Required administrator credentials

You must know the following credentials for the database instance hosting your repository.

REPOSITORY DATABASE TYPE	CREDENTIALS
SQL Server	SYSADMIN
Oracle	database administrator (DBA)

REPOSITORY DATABASE TYPE	CREDENTIALS
--------------------------	-------------

MySQL	repository administrator
-------	--------------------------

**i** Alternatively, you can:

- Provide the credentials of a user with privileges to create the repository user. The privileged user requires the Create, Drop, and Create User permissions and must be able to grant the following permissions:  
`GRANT ALL PRIVILEGES on <databaseName>`  
 Where <databaseName> is the repository database you create or select when you set up the MySQL repository storage.
- Run a script to create the repository user.

Azure SQL Database	repository administrator
--------------------	--------------------------

**i** Alternatively, you can:

- Provide the credentials of a user with privileges to create the repository user. This user must be a member of the db\_owner role.
- Run a script to create the repository user.

## Virtual environment

In a virtual environment, DPA can remotely connect to the following to monitor the virtual environment that virtualized database instances are running on. The virtualized database instances must be registered separately from the virtual environment.

VMware vCenter Server	<ul style="list-style-type: none"> <li>• 6.7</li> <li>• 6.5</li> <li>• 6</li> </ul>
VMware ESX/ESXi Host	<ul style="list-style-type: none"> <li>• 6.7</li> <li>• 6.5</li> <li>• 6</li> </ul>

## Supported Web browsers

You can use the following browsers to access the SolarWinds DPA web interface:

- Microsoft Edge
- Microsoft Internet Explorer 11

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

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

## MySQL requirements

SolarWinds recommends the following settings to optimize reporting capabilities for a MySQL database instance.

### MySQL Performance Schema

The Performance Schema monitors server events and collects performance data. If the Performance Schema is not enabled, SolarWinds DPA provides limited data. Monitoring with the Performance Schema disabled excludes the following data:

- All instrumented wait events
- All wait operations
- All file wait time, broken out by file
- All object wait time, broken out by index and table
- SQL statistics
- Performance-schema dependent alerts

The Performance Schema must be enabled at server startup. In MySQL versions 5.6.6 and later, the Performance Schema is enabled by default.

### Global Instrumentation and Thread Instrumentation

Global Instrumentation and Thread Instrumentation must be enabled in the Performance Schema configuration. Disabling these instruments has the same effect as disabling the Performance Schema.

By default, SolarWinds DPA enables these instruments in the configuration. However, if you select the Leave As Is option for Performance Schema setup, you must verify that Global Instrumentation and Thread Instrumentation are enabled in the existing Performance Schema configuration.

### show\_compatibility\_56 system variable

If the monitored database instance is MySQL 5.7.6 or later, SolarWinds recommends turning on the `show_compatibility_56` system variable. If this variable is on, SolarWinds DPA can collect data for all metrics.

If this variable is off and the Performance Schema is enabled, SolarWinds DPA cannot collect data for the following metrics:

- Selects
- Inserts

- Updates
- Deletes

## Java requirements

DPA requires JRE 11 on the DPA server, and DPA ships with this version of Java for Windows and Linux. If you are installing DPA on a supported operating system, no action is required.

For unsupported operating systems, you must ensure that JRE 11 is installed on the DPA server. If you need to upgrade the JRE:

1. Download and install JRE 11.
2. Remove old Java information by deleting the `cat.txt` and `cat.end` files from the following directory:

```
<DPA_Home>/iwc/tomcat/ignite_config/
```

3. At a command line, go to the DPA installation directory.
4. Enter the following command:

```
./startup.sh
```

## Database versions you can monitor

SolarWinds DPA can monitor database instances you manage on both physical and virtual servers or Amazon RDS instances hosted in the Amazon Elastic Compute Cloud (EC2). You can monitor Oracle, Microsoft SQL Server, Azure SQL, MySQL, SAP ASE, and IBM DB2 database instances. The server hosting DPA must be able to connect to the monitored server.

## Self-managed databases

When you register a self-managed database instance, you must provide the credentials of a **privileged user**. The required privileges are listed below. During registration, the privileged user either creates the monitoring user, or grants privileges as needed to an existing user designated as the monitoring user. DPA does **not** store the credentials of the privileged user.

DATABASE	PRIVILEGES REQUIRED FOR THE PRIVILEGED USER	SUPPORTED VERSIONS
Oracle	SYS user	<ul style="list-style-type: none"> <li>• 18.3.x (single tenant and multitenant*)</li> <li>• 12.2.x (single and multitenant)</li> <li>• 12.1.x (single and multitenant)</li> <li>• 11.2.x</li> </ul>

DATABASE	PRIVILEGES REQUIRED FOR THE PRIVILEGED USER	SUPPORTED VERSIONS
Microsoft SQL Server	SYSADMIN role	<ul style="list-style-type: none"> <li>• 2017 (Windows and Linux)</li> <li>• 2016 SP2</li> <li>• 2014 SP2</li> <li>• 2012 SP4</li> <li>• 2008 R2 SP3</li> <li>• 2008 SP4</li> </ul>
SAP Sybase ASE	SA_ROLE	<ul style="list-style-type: none"> <li>• 16</li> <li>• 15.7</li> <li>• 15.5</li> </ul>
IBM DB2 LUW	SYSADM	<ul style="list-style-type: none"> <li>• 11.1</li> <li>• 10.5</li> <li>• 10.1</li> <li>• 9.7</li> </ul>
MySQL	<p>The privileged user requires the CREATE USER permission and must be able to grant the following permissions:</p> <p>PROCESS on *.*            SELECT &amp; UPDATE on performance_schema.*</p> <p>To enable the retrieval of query execution plans, this privileged user must be able to grant the following permissions:</p> <p>SELECT, INSERT, UPDATE, DELETE on *.*</p>	<ul style="list-style-type: none"> <li>• 5.7.9</li> <li>• 5.6.10</li> <li>• Percona 5.6 and 5.7</li> <li>• Maria 10.0, 10.1, and 10.2</li> </ul>

**i** DPA **cannot** monitor MySQL 8.0 database instances.

\* To monitor an Oracle multitenant container database (CDB), register each pluggable database (PDB) contained in the CDB. Register each PDB just as you would register an Oracle single tenant database. For more information, see [Registration and licensing options for clustered environments](#).

## Amazon RDS databases

DPA can monitor Amazon RDS Oracle, Microsoft SQL Server, and MySQL instances.

AMAZON RDS	SUPPORTED VERSIONS
Oracle	<ul style="list-style-type: none"> <li>• 12.2.x</li> <li>• 12.1.x</li> <li>• 11.2.x</li> </ul>

AMAZON RDS	SUPPORTED VERSIONS
Microsoft SQL Server	<ul style="list-style-type: none"> <li>• 2017</li> <li>• 2016</li> <li>• 2014 SP1</li> <li>• 2012 SP2</li> <li>• 2008 R2 SP3</li> </ul>
MySQL	<ul style="list-style-type: none"> <li>• 5.7.9+</li> <li>• 5.6.10+</li> <li>• Aurora 5.6.10a+</li> </ul>

### Key differences for Oracle databases on Amazon RDS

Because of Amazon RDS access restrictions, some features that are available on Oracle self-managed database instances are not available for Amazon RDS instances.

CATEGORY	DETAILS
Unavailable alerts	Oracle Alert Log Error uses <code>V\$DIAG_ALERT_EXT</code> instead of <code>X\$DBGALERTEXT</code> .
Explain plans	Explain plans cannot be generated with a <code>SYS</code> account. You must specify a different account to generate the live plan.
Workarounds for not having a <code>SYS.UTL_CON</code> package	<ul style="list-style-type: none"> <li>• To kill a real time session, use <code>RDSADMIN.RDSADMIN_UTIL.KILL</code>.</li> <li>• Trace session permissions granted through <code>START_TRACE_IN_SESSION</code> and <code>STOP_TRACE_IN_SESSION</code>.</li> </ul>

### Key differences for SQL Server databases on Amazon RDS

Because of Amazon RDS access restrictions, some features that are available on SQL Server self-managed database instances are not available for Amazon RDS instances.

CATEGORY	DETAILS
Unavailable alerts	<ul style="list-style-type: none"> <li>• SQL Server Windows Service Not Running</li> <li>• SQL Server Long Running Jobs</li> <li>• SQL Server Log Has Many Virtual Logs</li> <li>• SQL Server Job Failure</li> <li>• SQL Server Error Log Alert</li> </ul>
Explain plans	The DPA monitoring user does not have a <code>sysadmin</code> role and may have limited access to objects. You can specify a different user to generate the live plan before you generate the plan.

CATEGORY	DETAILS
Unavailable metrics	<ul style="list-style-type: none"> <li>• CPU Queue Length</li> <li>• CPU Utilization</li> <li>• Disk Queue Length</li> <li>• Memory Paging Rate</li> <li>• Memory Utilization</li> <li>• Physical I/O Rate</li> <li>• Physical Read Rate</li> <li>• Physical Write Rate</li> </ul>
Workaround for not having a SYSADMIN role	DPA user is a member of PROCESSADMIN role
Deadlock polling	The monitoring user and database administrator (DBA) do not have permission to create a custom Extended Events Session. Only the default <code>system_health</code> Extended Events Session can be used for deadlock polling.

## About repointing database instances

You cannot transfer a registered Oracle or SQL Server database instance between Amazon RDS and a self-managed database and retain DPA historical data. An Oracle or SQL Server database instance transferred between Amazon RDS and a self-managed instance must be registered in DPA as a separate instance.

MySQL database instances can be repointed. After you transfer a MySQL database instance between Amazon RDS and self-managed, you can repoint DPA to the new instance and continue monitoring where you left off. To repoint, use the Update Connection Info wizard in DPA to update the connection details of the registered database instance to point to the new location.

## Azure databases

DATABASE	REQUIRED PRIVILEGES	SUPPORTED VERSION
Azure SQL	db_owner role	<ul style="list-style-type: none"> <li>• V12</li> </ul>

## Key differences between self-managed SQL Server and Azure SQL database instances

CATEGORY	DETAILS
Unavailable Alerts	<ul style="list-style-type: none"> <li>• Transaction Log Freespace</li> <li>• Windows Service Not Running – SQL Server</li> <li>• SQL Server Abnormal Mirroring Status</li> <li>• SQL Server Error Log Alerts</li> <li>• SQL Server Job Failure</li> <li>• SQL Server Log has Many Virtual Logs</li> <li>• SQL Server Long Running Jobs</li> </ul>
Unavailable CPU Metrics	<ul style="list-style-type: none"> <li>• Signal Waits</li> <li>• O/S CPU Utilization</li> </ul>
Unavailable Memory Metrics	<ul style="list-style-type: none"> <li>• Page Life Expectancy</li> <li>• O/S Memory Utilization</li> <li>• Plan Cache Size</li> <li>• Buffer Cache Size</li> <li>• Plan Cache Hit Ratio</li> <li>• Buffer Cache Hit Ratio</li> <li>• Log Bytes Flushed</li> <li>• Log Flushes</li> <li>• SQL Compilation</li> <li>• SQL Re-Compilations</li> </ul>
Unavailable Disk Metrics	<ul style="list-style-type: none"> <li>• Total I/O Wait Time</li> <li>• Total Read I/O Wait Time</li> <li>• Total Write I/O Wait Time</li> <li>• O/S Disk Queue Length</li> <li>• Page Reads</li> <li>• Page Writes</li> <li>• SQL Disk Read Latency</li> <li>• SQL Disk Write Latency</li> </ul>
Unavailable Sessions Metrics	<ul style="list-style-type: none"> <li>• Transaction Rate</li> <li>• Batch Requests</li> </ul>
Unavailable License Compliance Metrics	<ul style="list-style-type: none"> <li>• Core Count</li> </ul>
Additional DTU metrics	<ul style="list-style-type: none"> <li>• DTU Utilization</li> <li>• DTU Consumption</li> <li>• DTU Limit</li> </ul>

CATEGORY	DETAILS
Additional Memory metrics	<ul style="list-style-type: none"><li>• Memory Usage Utilization</li><li>• XTP Storage Utilization</li></ul>
Additional Disk metrics	<ul style="list-style-type: none"><li>• Data I/O Utilization</li><li>• Log Write Utilization</li><li>• Database Storage Consumption</li><li>• Database Size</li></ul>
Additional Sessions metrics	<ul style="list-style-type: none"><li>• Max Worker Utilization</li><li>• Max Session Utilization</li></ul>

## About repointing database instances

Repointing database instances is not possible between Azure SQL and SQL Server.

# Install DPA

You can install DPA in any of the following environments:

- [Install DPA on Windows](#)
- [Install DPA on Linux or Unix](#)
- [Install DPA on Azure Marketplace](#)

You can also [Launch DPA on Amazon Web Services](#) using subscription licensing.

**i** If you want to use individual DPA licenses in the Amazon cloud, you can deploy an EC2 instance, install DPA, and apply your licenses. You cannot use both individual DPA licenses and a subscription on a single DPA server.

## Install DPA on Windows

The installation process creates a Windows service called Ignite PI Server. This service is set to run automatically when the server is restarted.

### Before you start

Before you install Database Performance Analyzer, be sure to review the [preflight checklist](#).

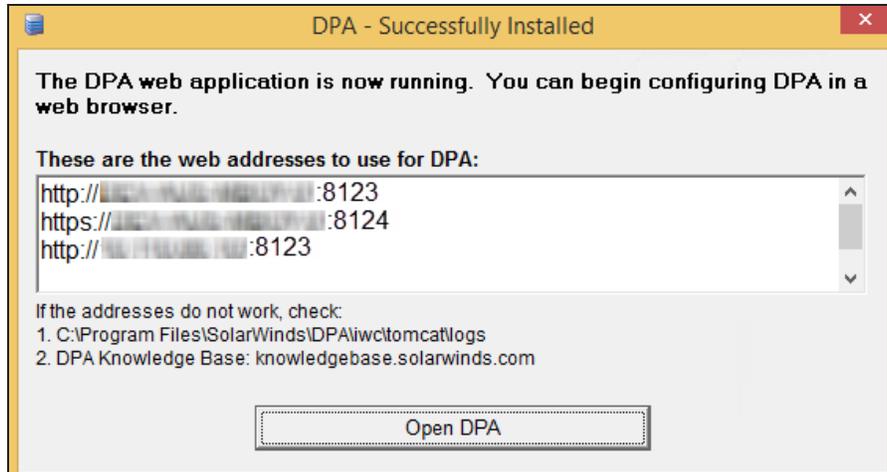
## Install DPA

1. Download the installation file from the [SolarWinds Customer Portal](#).

**i** If you have not yet created a SolarWinds account, see [Access the Customer Portal](#) to create an account.

2. Log in to the Windows server as an administrator.
3. Extract the contents of the downloaded installation ZIP file.
4. Run `SolarWindsDPASetup-x64.exe`.
5. Follow the onscreen instructions, and then click Finish.

After a successful installation, the URLs used to open DPA are displayed.



## Next steps

Click Open DPA, and [create the repository database](#).

## Install DPA on Linux

### Before you start

Before you install Database Performance Analyzer, be sure to review the [preflight checklist](#).

### Install DPA

1. Install the fonts that DPA requires by running one of the following command on the DPA server.

- For Deb based distributions (for example, Debian and Ubuntu):

```
apt-get install fontconfig
```

- For RPM based Linux distributions (for example, RHEL, Fedora, and CentOS):

```
yum install urw-fonts
```

**i** If the required fonts are not installed, you will receive a Status 500 Internal Server Error when you attempt to start DPA. For more information, see [this article](#).

2. Download the installation file from the [SolarWinds Customer Portal](#).

**i** If you have not yet created a SolarWinds account, see [Access the Customer Portal](#) to create an account.

3. Create a directory to hold this version of SolarWinds DPA. For example: `/home/dpa`.

4. Extract the downloaded TAR installation file into the new directory.

5. Use either of the following methods to run the `dpa_<version>_installer.sh` script from the command line:
  - Make it executable and run it directly:

```
chmod +x dpa_<version>_installer.sh
./dpa_<version>_installer.sh
```
  - Run it in the shell:

```
sh dpa_<version>_installer.sh
```
6. When prompted, create a directory on the server for installation. This becomes the SolarWinds DPA Home directory.
7. Start SolarWinds DPA by running the following command from the Home directory:

```
./startup.sh
```

## Next steps

Go to `http://yourserver:8123` in a web browser and [create the repository database](#).

## Install DPA on Azure Marketplace

You can deploy SolarWinds DPA on a virtual machine in the Microsoft Azure Marketplace. The VM contains a DPA server on Windows and a built-in Microsoft SQL Server database instance configured as the DPA repository.

You can access the SolarWinds DPA user interface on the standard HTTP port 80 and HTTPS port 443. The Windows Firewall settings have been set to allow inbound HTTP and HTTPS traffic.

## Before you start

Before you install Database Performance Analyzer, be sure to review the [preflight checklist](#).

## Create a DPA instance in the Azure Marketplace

1. Log in to the Azure Marketplace.
2. In the left column, click New.
3. In the Search the marketplace bar, enter `SolarWinds`.
4. Click Database Performance Analyzer, and then click Create in the right pane.

## Create the virtual machine

Follow the five-step wizard to create the virtual machine that will host DPA.

---

Basics: Configure basic settings	<ol style="list-style-type: none"><li>1. Enter the basics such as VM name, VM credentials, and your location.</li><li>2. Click OK.</li></ol>
Size: Choose virtual machine size	<ol style="list-style-type: none"><li>1. Click a size based on your needs.</li><li>2. Click Select.</li></ol>
Settings: Configure optional features	<ol style="list-style-type: none"><li>1. Customize the additional settings if necessary.</li><li>2. Click OK.</li></ol>
Summary: Database Performance Analyzer	<ol style="list-style-type: none"><li>1. Review the summary.</li><li>2. If everything looks good, click OK.</li></ol>
Buy	<ol style="list-style-type: none"><li>1. Review the offer details.</li><li>2. If everything looks good, click Purchase.</li></ol>

---

## Log in to the Azure DPA server

1. In the left column, click Virtual machines.
2. Click the name of the VM you just created for DPA.
3. In Overview > Essentials, copy the value in the Public IP address field.
4. Paste the IP address in a new browser tab.
5. If you agree, accept the DPA end-user license agreement.
6. Create a DPA password, select a time zone, and click Set up DPA.
7. Log in using your DPA password.
8. Start using DPA by registering a [database instance for monitoring](#).

## Create the repository database

After you install DPA and open it for the first time, you must create a repository database. The repository database stores monitoring user credentials and the performance data that SolarWinds DPA collects from monitored database instances.

You can create the repository database on any of the following database types:

- [Create a SQL Server repository database](#)
- [Create an Oracle repository database](#)
- [Create a MySQL repository database](#)
- [Create an Azure SQL Database repository database](#)

## Create a SQL Server repository database

After you [install DPA](#), you must create the repository database, which holds the performance data that DPA collects. Use this procedure to create a SQL Server repository database.

### Before you start

Before you run the Repository wizard:

- Make sure the repository database server meets the [system requirements](#).
- Install a [supported version](#) of SQL Server on the database server.
- If you run the wizard from a different computer (**not** the server where DPA was installed), make sure the required firewall port is open. By default, port 8123 must be open.
- The SolarWinds DPA server connects to the repository through a TCP/IP connection. Make sure that connection is not blocked by a firewall.
- Make sure you have credentials to a login with SYSADMIN privileges for the SQL Server database instance.

### Run the wizard

1. To open DPA, click the button on the installation confirmation dialog, or enter one of the following URLs in a web browser:
  - `http:<serverName_or_IP>:8123`
  - `https:<serverName_or_IP>:8124`

The Repository wizard opens automatically if the repository database has not been created.

2. Click Create New Repository.
3. Complete the remaining wizard panels as described in the following table.

PANEL	INSTRUCTIONS
Select Repository Database Instance Type	Select Microsoft SQL Server as the database type.
Enter Repository Connection Information	<ol style="list-style-type: none"><li>1. Enter connection information for the SQL Server instance:<ul style="list-style-type: none"><li>• If the SQL Server browser service is running, enter the server name or IP address and the instance name in this format: <code>Server\Instance</code>.</li><li>• Otherwise, enter the server name or IP address and the port number.</li></ul></li><li>2. Select the type of authentication you want to use. If Mixed Mode was selected during the SQL Server installation, you can choose either option.</li><li>3. Enter a SYSADMIN login that DPA can use to create the repository.</li></ol> <div data-bbox="440 800 1513 892"><p> DPA does not use or store these credentials after you complete the Repository Wizard.</p></div> <ul style="list-style-type: none"><li>• For Windows authentication, enter <code>&lt;DOMAIN&gt;\&lt;username&gt;</code> in the SYSADMIN User field.</li><li>• For SQL Server authentication, enter the credentials that you enter on the Connect to Server dialog in SQL Server Management Studio (with Database Engine as the Server type).</li></ul>

PANEL	INSTRUCTIONS
Enter Repository Login	<p>DPA can create the repository administrator account, or you can specify an existing account. To ensure that the account has the required permissions, SolarWinds recommends creating a new account.</p> <p>To create a new account:</p> <ol style="list-style-type: none"> <li>1. Click Yes.</li> <li>2. Select SQL Server as the authentication method. (DPA cannot create a new Windows account.)</li> <li>3. Enter a user name and password for the new account.</li> </ol> <p>To specify an existing account:</p> <ol style="list-style-type: none"> <li>1. Click No.</li> <li>2. Select either authentication method.</li> <li>3. Enter the user name and password of an existing account.</li> </ol> <p>For Windows authentication, enter &lt;DOMAIN&gt;\&lt;username&gt; in the Repository Login field.</p> <p>You can also authenticate <a href="#">using a Windows Computer Account</a>.</p> <p>For SQL Server authentication, only the user name is required. Do not specify a domain.</p>
Specify Database for the Repository	<p>Create a new database, or select an existing, empty database if one is available:</p> <ul style="list-style-type: none"> <li>• To create a new database, enter the database name. The name is automatically prefixed by dpa_ for identification.</li> <li>• The Existing empty database option is shown only if the repository contains an empty database. If your database administrator created a database for DPA, select it from the list.</li> </ul>
Contact Information	<p>Enter your name and email. SolarWinds DPA sends database performance reports to this address.</p>
Summary	<p>Review the information and click Create Repository.</p>
Finished Repository Creation	<p>After the repository has been created, click Register Database Instance to start <a href="#">registering instances</a>, or close the wizard and register instances later.</p>

## Create an Oracle repository database

After you [install DPA](#), you must create the repository database, which holds the performance data that DPA collects. Use this procedure to create an Oracle repository database.

## Oracle multitenant databases

You can create the DPA repository database on an Oracle pluggable database (PDB), but not a container database (CDB). If you create the repository on a PDB, the PDB can be moved:

- If the PDB is moved to another CDB on the same server, the connection string does not change. No action is required.
- If the PDB is moved to a CDB on a **different** server, the connection string changes. You must update the connection string in the `repo.properties` file in the following location:

```
<DPA_Install_Dir>\iwc\tomcat\ignite_config\iwc\repo.properties
```

## Before you start

Before you run the Repository wizard:

- Make sure the repository database server meets the [system requirements](#).
- Install a [supported version](#) of Oracle on the database server.
- If you run the wizard from a different computer (**not** the server where DPA was installed), make sure the required firewall port is open. By default, port 8123 must be open.
- The SolarWinds DPA server connects to the repository through a TCP/IP connection. Make sure that connection is not blocked by a firewall.
- Make sure you have credentials to a login with database administrator (DBA) privileges for the Oracle database instance.

## Run the wizard

1. To open DPA, click the button on the installation confirmation dialog, or enter one of the following URLs in a web browser:

- `http:<serverName_or_IP>:8123`
- `https:<serverName_or_IP>:8124`

The Repository wizard opens automatically if the repository database has not been created.

2. Click Create New Repository.
3. Complete the remaining wizard panels as described in the following table.

PANEL	INSTRUCTIONS
Select Repository Database Instance Type	Select Oracle as the database type.

PANEL	INSTRUCTIONS
Enter Repository Connection Information	<p>SolarWinds DPA requires a DBA user with privileges to create a SolarWinds DPA user with access to the repository.</p> <p>The DBA user is not used or stored after you complete the Repository Creation Wizard.</p> <p>SolarWinds DPA creates a new Oracle schema and populates it with tables, indexes, and initial data.</p> <p>Oracle database instances have three connection options:</p>
	<p><b>Direct Connect</b></p> <p>Enter the Service Name or System Identifier (SID), host name or IP address, and port. The default port is 1521.</p> <p>Enter DBA credentials.</p> <div style="border: 1px solid orange; padding: 5px; background-color: #fff9c4;">  Do not use a critical production database.                 </div>
	<p><b>Transparent Network Substrate (TNS) Connect Descriptor</b></p> <p>The Connect Descriptor value contains everything after NAME= in the <code>tnsnames.ora</code> file. The beginning <code>(DESCRIPTION=</code> is necessary. For example:</p> <pre>(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP) (HOST = demo.confio.com) (PORT = 1521))) (CONNECT_DATA = (SERVICE_NAME = demo)))</pre> <p>Enter DBA credentials.</p>
	<p><b>Lightweight Directory Access Protocol (LDAP) or TNS Name</b></p> <p>To use this option, Oracle Name Resolution must be configured. For instructions, see <a href="#">Connect to Oracle using name resolution</a>.</p> <p>After you configure Oracle Name Resolution, you can use the LDAP/TNS Name when registering additional monitored database instances.</p> <p>Enter DBA credentials.</p>

PANEL	INSTRUCTIONS														
Repository Database Server Warnings	<p>If your repository database server meets the minimum requirements, the wizard skips this step.</p> <p>DPA shows a report of the current Oracle parameters with values below the recommended minimum. SolarWinds recommends correcting these parameters before continuing. You can continue without fixing these parameters, but parameter values below the recommend minimums may affect the performance of the repository.</p>														
<b>MINIMUM ORACLE PARAMETERS</b>															
	<table border="1"> <tr> <td>db_block_buffers (or db_cache_size)</td> <td>&gt; 100 MB per monitored database</td> </tr> <tr> <td colspan="2" style="background-color: #fff9c4;"> This is a critical parameter.</td> </tr> <tr> <td>shared_pool_size</td> <td>&gt; 50 MB</td> </tr> <tr> <td>sort_area_size</td> <td>&gt; 4 MB</td> </tr> <tr> <td>log_buffer</td> <td>&gt; 1 MB</td> </tr> <tr> <td>session_cached_cursors</td> <td>&gt; 10</td> </tr> <tr> <td>Redo Log Size (select min(bytes) from v\$log)</td> <td>&gt; 10 MB</td> </tr> </table>	db_block_buffers (or db_cache_size)	> 100 MB per monitored database	 This is a critical parameter.		shared_pool_size	> 50 MB	sort_area_size	> 4 MB	log_buffer	> 1 MB	session_cached_cursors	> 10	Redo Log Size (select min(bytes) from v\$log)	> 10 MB
db_block_buffers (or db_cache_size)	> 100 MB per monitored database														
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sort_area_size	> 4 MB														
log_buffer	> 1 MB														
session_cached_cursors	> 10														
Redo Log Size (select min(bytes) from v\$log)	> 10 MB														
Enter Repository Login	<p>DPA can create the repository administrator account, or you can specify an existing account. To ensure that the account has the required permissions, SolarWinds recommends creating a new account.</p> <p>To create a new account:</p> <ol style="list-style-type: none"> <li>Next to Create New User, click Yes.</li> <li>Enter the user name and password.</li> </ol> <p>To specify an existing account:</p> <ol style="list-style-type: none"> <li>Next to Create New User, click No.</li> <li>Enter the user name and password.</li> </ol>														
Specify Tablespaces for the Repository	<p>SolarWinds DPA stores the Oracle repository in tablespaces.</p> <ol style="list-style-type: none"> <li>Select a tablespace where SolarWinds DPA stores performance data.</li> <li>Select a temporary tablespace for the SolarWinds DPA repository user.</li> </ol>														
Contact Information	Enter your name and email. SolarWinds DPA sends database performance reports to this address.														
Summary	Review the information and click Create Repository.														

PANEL	INSTRUCTIONS
Finished Repository Creation	After the repository has been created, click Register Database Instance to start <a href="#">registering instances</a> , or close the wizard and register instances later.

## Create a MySQL repository database

After you [install DPA](#), you must create the repository database, which holds the performance data that DPA collects. Use this procedure to create a MySQL repository database.

### Before you start

Before you run the Repository wizard:

- Make sure the repository database server meets the [system requirements](#).
- Install a [supported version](#) of MySQL on the database server.
- If you run the wizard from a different computer (**not** the server where DPA was installed), make sure the required firewall port is open. By default, port 8123 must be open.
- The SolarWinds DPA server connects to the repository through a TCP/IP connection. Make sure that connection is not blocked by a firewall.

### Run the wizard

1. To open DPA, click the button on the installation confirmation dialog, or enter one of the following URLs in a web browser:
  - `http:<serverName_or_IP>:8123`
  - `https:<serverName_or_IP>:8124`

The Repository wizard opens automatically if the repository database has not been created.

2. Click Create New Repository.
3. Complete the remaining wizard panels as described in the following table.

PANEL	INSTRUCTIONS
Select Repository Database Instance Type	Select MySQL as the database type.

PANEL	INSTRUCTIONS
Enter Repository Connection Information	<p>SolarWinds DPA creates a new database and populates it with tables, indexes, and initial data.</p> <ol style="list-style-type: none"><li>1. Enter the server name or IP address and port.</li><li>2. Select a method for creating or configuring the MySQL repository administrator.</li></ol> <p>To create a new account:</p> <ol style="list-style-type: none"><li>1. Click Provide a privileged user.</li><li>2. Enter the credentials of an existing user with privileges to create the repository user and grant the required permissions. The credentials for the privileged user are not used or stored after the registration.</li></ol> <p>The privileged user requires the Create, Drop, and Create User permissions and must be able to grant the following permissions:</p> <pre>GRANT ALL PRIVILEGES on &lt;databaseName&gt;</pre> <p>Where &lt;databaseName&gt; is the repository database you create or select when you set up the MySQL repository storage.</p> <p>To specify an existing account:</p> <ol style="list-style-type: none"><li>1. Click Provide the repository user.</li><li>2. Enter credentials. SolarWinds DPA encrypts the password.</li></ol> <p>Alternatively, you can use the script that SolarWinds DPA provides to create a repository user.</p> <ol style="list-style-type: none"><li>1. Click Repository DB and User Creation Script, and follow the on-screen instructions.</li><li>2. Copy the edited script to the MySQL console, and run it.</li><li>3. Provide this user as your repository user.</li></ol>
Enter Repository Login	<p>If you provided the repository user in the previous step, the wizard skips this step. DPA can create the repository administrator account, or you can specify an existing account. To ensure that the account has the required permissions, SolarWinds recommends creating a new account.</p> <p>To create a new account:</p> <ol style="list-style-type: none"><li>1. Next to Create New User, click Yes.</li><li>2. Enter the user name and password.</li></ol> <p>To specify an existing account:</p> <ol style="list-style-type: none"><li>1. Next to Create New User, click No.</li><li>2. Enter the user name and password.</li></ol>

PANEL	INSTRUCTIONS
Specify Database for the Repository	<p>To store the repository in a new database, enter a database name. SolarWinds DPA prefixes the name with <code>dpa_</code> for identification.</p> <p>To store the repository in an existing database, select a database from the list.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p><b>i</b> This option is available only if the repository instance contains an empty database.</p> </div> <ul style="list-style-type: none"> <li>If your MySQL Administrator created a database for SolarWinds DPA, select the database from the list.</li> <li>If you provided a privileged user, SolarWinds DPA only displays tables with Select permissions granted to the privileged user.</li> <li>If you provided the repository user, SolarWinds DPA only displays tables with Select permissions granted to the repository user.</li> <li>No database permissions are required while using the privileged user. SolarWinds DPA grants the required permissions to the specified user when creating the repository.</li> <li>The All privilege is required to use the database.</li> </ul>
Contact Information	Enter your name and email. SolarWinds DPA sends database performance reports to this address.
Summary	Review the information and click Create Repository.
Finished Repository Creation	After the repository has been created, click Register Database Instance to start <a href="#">registering instances</a> , or close the wizard and register instances later.

## Create an Azure SQL Database repository database

After you [install DPA](#), you must create the repository database, which holds the performance data that DPA collects. Use this procedure to create an Azure SQL Database repository database.

### Before you start

Before you run the Repository wizard:

- Create a database in Azure SQL Database.
- The SolarWinds DPA server connects to the repository through a TCP/IP connection. Make sure that connection is not blocked by a firewall.

## Run the wizard

1. To open DPA, click the button on the installation confirmation dialog, or enter one of the following URLs in a web browser:

- `http:<serverName_or_IP>:8123`
- `https:<serverName_or_IP>:8124`

The Repository wizard opens automatically if the repository database has not been created.

2. Click Create New Repository.
3. Complete the remaining wizard panels as described in the following table.

PANEL	INSTRUCTIONS
Select Repository Database Instance Type	Select Azure SQL as the database type.
Enter Repository Connection Information	<p>Before connecting, the database must exist in Azure and be empty.</p> <ol style="list-style-type: none"><li>1. Enter the server name, port, and database name. You cannot use an IP address in the Server Name field.</li><li>2. Select a method for creating or configuring the repository administrator.</li></ol> <p>To create a new account:</p> <ol style="list-style-type: none"><li>1. Click Let DPA create and configure the user for me.</li><li>2. Enter the credentials of an existing user with privileges to create the repository user and to grant the required permissions.</li></ol> <p>This user must be a member of the db_owner role.</p> <p>To specify an existing account, enter the user name and password of an existing account that DPA will use the interact with the repository.</p> <p>Alternatively, you can use the provided script to create the repository user.</p> <ol style="list-style-type: none"><li>1. Click Repository User Creation Script, and follow the on-screen instructions.</li><li>2. Copy and run the edited script on your Azure SQL database.</li><li>3. Provide this user as your repository administrator.</li></ol>

PANEL	INSTRUCTIONS
Enter Repository Login	<p>DPA can create the repository administrator account, or you can specify an existing account. To ensure that the account has the required permissions, SolarWinds recommends creating a new account.</p> <p>To create a new account:</p> <ol style="list-style-type: none"><li>1. Click Let DPA create a new user.</li><li>2. Enter a user name and password for the new account.</li></ol> <p>To specify an existing account:</p> <ol style="list-style-type: none"><li>1. Click Let DPA configure an existing user.</li><li>2. Enter the user name and password of an existing account.</li></ol>
Contact Information	Enter your name and email. SolarWinds DPA sends database performance reports to this address.
Summary	Review the information and click Create Repository.
Finished Repository Creation	After the repository has been created, click Register Database Instance to start <a href="#">registering instances</a> , or close the wizard and register instances later.

# Uninstall DPA

You might need to uninstall and then reinstall DPA to resolve an issue or to move to a new server during a migration. See the following sections:

- [Before you uninstall](#)
- [Uninstall DPA on a Windows server](#)
- [Uninstall DPA on a Unix or Linux server](#)

## Before you uninstall

Before you uninstall DPA, SolarWinds recommends the following preparation:

- |                          |                               |  |
|--------------------------|-------------------------------|--|
| <input type="checkbox"/> | Back up the existing database | To preserve your data, back up your DPA repository database. If you need help with backups, check your vendor's site for documentation and instructions.<br><br>If your database is on a VM, create a snapshot or copy of your VM. |
| <input type="checkbox"/> | Back up the DPA directory     | Create a copy of the DPA home directory. You could have customizations in this directory specific to your installation.  |

## Uninstall DPA on a Windows server

To remove DPA from a Windows server, complete the following steps.

1. [Deactivate](#) all monitored instance licenses.
2. Stop the Ignite PI Server service.
3. Uninstall DPA.
  - a. From the Windows Control Panel, open Uninstall or change a program.
  - b. Right-click SolarWinds Database Performance Analyzer, and choose Uninstall.
  - c. Click Yes at the confirmation prompt.
4. Delete the DPA home directory. The default home directory is:  
`C:\Program Files\SolarWinds\DPA\`
5. Restart the server.  
You can now [reinstall DPA](#).

## Uninstall DPA on a Unix or Linux server

1. [Deactivate](#) all monitored instance licenses.
2. Stop DPA by running the `shutdown.sh` command from the DPA directory.

3. Remove all cron jobs that start DPA.
4. Delete the DPA home directory.
5. Restart the server.

You can now [reinstall DPA](#).

# Upgrade DPA

This guide walks you through upgrading SolarWinds DPA. We include checklists to prepare and complete your upgrade, including gotchas and troubleshooting steps.

## Supported upgrade paths

The supported upgrade paths are:

- DPA 10.2 → 12.1
- DPA 11.0 → 12.1
- DPA 11.1 → 12.1
- DPA 12.0 → 12.1

 For information about upgrading from DPA Free, see [Upgrade from DPA Free to DPA](#).

## My upgrade plan checklist

This preflight checklist details a number of important steps to help plan and prep for your upgrade.

- |   |   |
|---|---|
| <input type="checkbox"/> Review release notes             | Review product <a href="#">release notes</a> in our Success Center.   |
| <input type="checkbox"/> Review system requirements       | Make sure your environment has all of the required hardware and software needs for your installations. See the <a href="#">DPA system requirements</a> .  |
| <input type="checkbox"/> Review licenses                  | Review your current product licenses and determine if you need to make any changes. You can download any updated license keys for your upgrade through your Customer Portal. Verify any license upgrades and needs with your SolarWinds account manager or <a href="#">contact SolarWinds</a> . |
| <input type="checkbox"/> Gather credentials               | Make sure you have your SolarWinds account and local administrator credentials for the DPA server.  |
| <input type="checkbox"/> Run all operating system updates | Before upgrading, check for and run all Windows or Linux operating system updates.  |
| <input type="checkbox"/> Schedule the upgrade             | Set up the maintenance window, preferably during off-peak hours. The duration depends on the size of your repository database and the number of monitored database instances.   |

 Upgrades will require database monitoring to be offline for a period of time.

- Notify your company**      Send a message to your company of the upgrade schedule and maintenance window. If you need additional help, contact and allocate specific staff to be available.

## How long does an upgrade take?

DPA upgrades typically take fewer than 10 minutes. The time it takes to complete an upgrade depends on:

- Hardware
- DPA server performance
- Repository database server performance and database size
- Number of monitored database instances

Because every configuration is different, we cannot predict exactly how long your upgrade will take.

## Gotchas you should review

- If you have specified that DPA use a Java installation other than the default version that DPA installs, you must update it to a supported version. (See End of Support for more information.)
- In previous versions of DPA, SQL Server 2005 repository databases functioned (even though they were not supported). In DPA 12.1, SQL Server 2005 repository databases will **no longer function**. If you are still using a SQL Server 2005 database as the DPA repository, you must upgrade to a supported repository database version before you upgrade to DPA 12.1.

## Prepare your environment to upgrade

When you are ready to upgrade, complete these steps. They include the common actions you need to complete before upgrading DPA.

 If you have a test or staging environment, we highly recommend testing the upgrade first. You cannot roll back an installation once completed.

- 1. Back up your DPA server**      Back up your DPA server. If you have your DPA server on a VM, create a snapshot or copy of your VM.

- 2. Back up your repository database**      Back up your repository database. If you need help, please check your vendor's site for documentation and instructions.

 You cannot roll back an upgrade. Always create a repository database backup.

- 3. Stop DPA**      In Windows, stop the Ignite PI Service on the DPA server.  
  
In Linux, run the following command from the DPA directory:  
`shutdown.sh`

# Upgrade DPA

Follow the upgrade instructions based on the operating system of your DPA server:

1. Select your environment below to upgrade DPA.
  - [Upgrade DPA on Windows](#)
  - [Upgrade DPA on Linux](#)
  - [Upgrade DPA on an Amazon Machine Image instance](#)
  - [Upgrade DPA on an Azure VM](#)
2. If you have the DPA Integration Module in the Orion Web Console, upgrade that after the DPA upgrade is complete.

## After the upgrade check your system

The new product version should be installed properly. You should open DPA and verify the version displayed on the login screen or in the header on the home page. Try current and new features with your system to check performance and expected functionality. If you run into issues, check the troubleshooting tips.

## Troubleshooting

If you receive errors, try the following:

- If you experience issues and are not on the latest product version, we recommend upgrading to the latest version.
- Check our [Success Center](#) for troubleshooting. We recommend searching the name of the product, the version number, any error codes or messages displayed, and the general issue you found.
- Check your [Customer Portal](#) for any new hotfixes.

If an issue occurs you need additional help with, [contact Support](#). We recommend gathering a screenshot of the issue and any error codes you receive. Attach and add this information to your ticket.

## Upgrade DPA on Windows

1. Review the [upgrade checklist](#) and prepare your environment.
2. Download the most recent version of SolarWinds DPA from the [SolarWinds Customer Portal](#).
3. Run the installer.
4. When prompted, verify your instance-based Category 1 or Category 2 activation key.
5. Follow the installer instructions.

## Upgrade DPA on Linux

1. Review the [upgrade checklist](#) and prepare your environment.
2. Download the most recent version of SolarWinds DPA from the [SolarWinds Customer Portal](#).
3. Install the new version in a new directory on your existing server.
4. Run `./shutdown.sh` from the old installation directory.
5. Locate the directory that was created when you installed the new version:

```
/home/dpa_x_x_xxx = old installation home
```

```
/home/dpa_12_x_xxx = new SolarWinds DPA home
```

6. Copy or move these directories from the old installation to the new:

```
/iwc/tomcat/ignite_config/
```

```
/iwc/tomcat/logs/
```

```
/iwc/tomcat/licensing
```



Do not copy hotfix files.

For example:

```
mv OLD_home/iwc/tomcat/ignite_config/* NEW_home/iwc/tomcat/ignite_config/
```

or

```
cp -rp OLD_home/iwc/tomcat/ignite_config NEW_home/iwc/tomcat/ignite_config
```

7. If you changed the default SolarWinds DPA ports, then you must modify the `server.xml` file in the new installation to incorporate the port changes from your earlier installation.
8. Run `./startup.sh` from the new directory.

To complete the upgrade:

- Update any system startup files or cron job scripts that were created for the older version.
- Ensure the older version of DPA cannot start because this will cause conflicts with your ports, monitored instances, and the repository.

## Upgrade DPA on an Amazon Machine Image instance

If you're using DPA in Amazon Web Services (AWS) with subscription licensing, complete the following steps to upgrade to the latest version.

1. Review the [upgrade checklist](#) and prepare your environment.
2. Open a remote connection (SSH) and log in to your SolarWinds DPA instance in Amazon EC2.
3. Download the most recent version of SolarWinds DPA. Use the link provided in the new version notification banner.

 If the server you are upgrading on has Internet access, you can download DPA directly to that server. If not, you can download DPA to a different computer and then use SCP to transfer it.

4. Enter the following command to turn off the scheduled job that restarts DPA if it stops:

```
cmd> crontab -r
```

5. [Install the new version](#) in a new directory on your existing server.

6. Run `./shutdown.sh` from the old installation directory.

7. Locate the directory that was created when you installed the new version:

```
/home/dpa_x_x_xxx = old installation home
```

```
/home/dpa_12_x_xxx = new SolarWinds DPA home
```

8. Copy or move these directories from the old installation to the new:

```
/iwc/tomcat/ignite_config/
```

```
/iwc/tomcat/logs/
```

 Do not copy hotfix files.

For example:

```
mv OLD_home/iwc/tomcat/ignite_config/* NEW_home/iwc/tomcat/ignite_config/
```

or

```
cp -rp OLD_home/iwc/tomcat/ignite_config NEW_home/iwc/tomcat/ignite_
config
```

9. If you changed the default SolarWinds DPA ports, then you must modify the `server.xml` file in the new installation to incorporate the port changes from your earlier installation.
10. Run `./startup.sh` from the new directory.
11. Turn the cron job back on:

- a. Open crontab in edit mode:

```
cmd> crontab -e
```

- b. Add the following line:

```
* * * * * <FULL_PATH_TO_STARTUP_SCRIPT> > <FULL_PATH_TO_STARTUP_LOG>
2>&1
```

For example:

```
* * * * * /home/ec2-user/dpa_12_0_3074/startup.sh > /home/ec2-user/dpa_
12_0_3074/startup.log 2>&1
```

- c. Save your changes.

## Resize to a larger Amazon AWS instance type

The t2.medium Amazon EC2 instance type is sufficient only for monitoring up to 20 database instances. Resize your AWS instance type as your monitoring needs grow.

For more information, search "Resizing Your Instance" at <http://aws.amazon.com/documentation>.

## Upgrade DPA on an Azure VM

1. Review the [upgrade checklist](#) and prepare your environment.
2. Open a remote desktop session and log in to your SolarWinds DPA instance in the Azure Marketplace.
3. Download the most recent version of SolarWinds DPA from the [SolarWinds Customer Portal](#).
4. Run the installer, and follow the wizard.