



INSTALLATION AND UPGRADE GUIDE

# Database Performance Analyzer

Version 2021.3

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# DPA deployment overview

The following sections outline the tasks required to deploy DPA and begin monitoring database instances.

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

## Options for deploying DPA

DPA offers the following deployment options:

- **Self-installed DPA server and repository database**

You can install DPA on a server that runs either Windows or Linux. The DPA server can be on premises or in a private or public cloud. For this deployment option, complete the following tasks:

- Complete the [pre-installation checklist](#) to plan for the installation and prepare your environment.
- Install DPA on a server running [Windows](#) or [Linux](#).
- [Create the repository database](#), which stores the performance data that DPA collects.

 When you deploy DPA by installing it yourself, you must purchase an [individual license](#) for each monitored database instance.

- **Microsoft Azure Marketplace**

SolarWinds provides a pre-built image in the Microsoft Azure Marketplace. You can quickly [deploy DPA in the Azure Marketplace](#) without having to install it or set up the repository database. The VM contains a DPA server on Windows and a built-in Microsoft SQL Server database instance configured as the DPA repository.

 When you deploy DPA in the Azure Marketplace, you must purchase an [individual license](#) for each monitored database instance.

- **Amazon Web Services (AWS) Marketplace**

Another option for a quick deployment is to [launch an Amazon Machine Image \(AMI\) from the Amazon Marketplace](#) and then [create the DPA repository database](#).

 Individual licenses are not required for DPA deployments in the AWS Marketplace. The [AWS Marketplace Metering Service](#) is used to calculate DPA charges.

## Begin monitoring database instances

When you have deployed DPA, complete the following tasks to begin monitoring database instances:

- [Register each database instance](#) you want to monitor.
- For **self-installed** or **Azure Marketplace** deployments, 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.
- 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](#)
  - [Investigate an increase in wait time](#)
  - [Create an alert to monitor SQL statement execution time](#)
  - [Create a report to track wait types for a single SQL statement](#)

# Prepare to install DPA on a self-managed server

If you are [installing DPA yourself](#), 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

- Review the Database Performance Analyzer [release notes](#).
- Identify the server where DPA will be installed. Make sure the server:
  - Is powerful enough to handle the load of the potential number of monitored database instances that you will register. See the [DPA server requirements](#).
  - 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, although it is not required or recommended.
- Identify or install the repository database. Make sure:
  - The repository is not installed in a critical production database instance.
  - The repository database and server meet the [repository database requirements](#).
  - You have credentials with the [required privileges](#).
- Create a Customer Portal account.

To download SolarWinds products and licenses, you need a SolarWinds Customer Portal account. To create your SolarWinds account, see [How do I access the Customer Portal](#).
- 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.

 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.
- Schedule the installation, preferably during off-peak hours.

- 
- 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:

- 
- Prepare the servers based on your deployment size and [system requirements](#).
  - Before installation, **run all OS updates** 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.
  - For your server ports and firewall, open the [required ports](#). DPA uses these ports to send and receive data.
  - 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:

```
C:\Program Files\SolarWinds\DPA
```

## Installation gotchas

If you are installing 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 2021.3.7445 system requirements

See the following sections for minimum supported system requirements:

- [DPAIM compatibility](#)
- [Port requirements](#)
- [DPA server requirements](#)
- [Repository database requirements](#)
- [Virtual environment requirements](#)
- [Supported web browsers](#)
- [Requirements for monitoring MySQL database instances](#)
- [Java requirements](#)

For information about what database instances DPA can monitor, see [Database instances DPA can monitor](#).

## DPA Integration Module (DPAIM) compatibility

If you are **not** monitoring PostgreSQL database instances, DPA 2021.3.7445 is fully compatible with DPAIM 11.1 or later.

If you are monitoring PostgreSQL database instances, DPAIM 2020.2 or later is required to display all available data from PostgreSQL instances in the Orion Platform.

## Port requirements

Review and open the following ports in the firewall to support communication to and from the DPA server.

 No additional ports are required for DPA Central.

Port	Protocol	Service/Process	Direction	Description
8124 (on premises) or 443 (cloud)	TLS	Windows: Ignite PI Service  Linux: Java/Tomcat	Bidirectional	Default HTTPS port for the web server.

Port	Protocol	Service/Process	Direction	Description
8123 (on premises) or 80 (cloud)	TCP/HTTP	Windows: Ignite PI Service  Linux: Java/Tomcat	Bidirectional	Default HTTP port for the web server.
8127	TCP	Windows: Ignite PI Service  Linux: Java/Tomcat	Internal	This port is used internally by DPA. It does not need to be opened to internal or external traffic, but it needs to be available for DPA to use.
443	TLS	Windows: Ignite PI Service  Linux: Java/Tomcat	Outbound	(Optional) To participate in the SolarWinds Improvement Program (SWIP), allow access to <code>api.solarwinds.com</code> for uploads and <code>downloads.solarwinds.com</code> for downloads of XML configuration files.  (Optional) To enable online license activation or deactivation, allow access to <code>licenseserver.solarwinds.com</code> . Otherwise, use <a href="#">offline activation</a> or <a href="#">deactivation</a> .
80	TCP/HTTP	Windows: Ignite PI Service  Linux: Java/Tomcat	Outbound	(Optional) To allow product updates in self-managed deployments, allow access to <code>updates.solarwinds.com</code> .
587	SMTP	Windows: Ignite PI Service  Linux: Java/Tomcat	Outbound	(Optional) To use the default SMTP server for outgoing email from DPA, allow access to <code>mail.authsmtp.com</code> . Otherwise, <a href="#">configure DPA to use a custom SMTP server</a> .

If you are using the DPA Integration Module to integrate DPA with the Orion Platform, see the [DPAIM port requirements](#).

Other connections to consider include the following. The ports used for these connections depend on how your organization configures the connections:

- Monitored database instances – TCP
- Repository database – TCP
- VMware (usually 443) – TCP
- LDAP – TCP
- Custom SMTP server – based on the SMTP server
- SNMP trap – UDP

## 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):
  - A DPA AMI with DPA 2021.1 installed runs on the supported **Amazon Linux 2** operating system. This image does not include a repository.
  - DPA uses the [AWS Marketplace Metering Service](#) to calculate charges.
- 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%.**

 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 <sup>1</sup>
CPUs	2	4	4	6

Hardware / Software	1 - 20 Monitored DB Instances	21 - 50 Monitored DB Instances	51 - 100 Monitored DB Instances	101 - 250 Monitored DB Instances <sup>1</sup>
RAM dedicated to DPA	2 GB	4 GB	6 GB	8 GB
Disk space for DPA	10 GB minimum 20 GB recommended			
Disk space for Find SQL indexes	<p>If the Find SQL feature is enabled, storage space for the indexes is required. By default, DPA stores the indexes on the DPA server, but you can <a href="#">move them</a>.</p> <p>The amount of space required is determined by the number of monitored database instances. Index files for one instance can take up to 300 MB.</p> <p><b>Example:</b> You are monitoring 120 instances.</p> <p>120 x 0.3 GB = 36 GB</p> <p>Reserve at least 36 GB to provide adequate disk space for the Find SQL indexes.</p>			
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			
Thread limit (Linux only) <sup>2</sup>	<ul style="list-style-type: none"> <li>• max user process: 4096</li> <li>• max open files: 2048</li> </ul>	<ul style="list-style-type: none"> <li>• max user process: 4096</li> <li>• max open files: 2048</li> </ul>	<ul style="list-style-type: none"> <li>• max user process: 6144</li> <li>• max open files: 4096</li> </ul>	<ul style="list-style-type: none"> <li>• max user process: 8192</li> <li>• max open files: 6144</li> </ul>
Character sets	To support a multibyte language, the DPA server, repository, and monitored instances must be configured with the same character set.			

<sup>1</sup> If you plan to monitor more than 250 database instances, consider using more than one DPA server and [linking the servers together](#).

<sup>2</sup> To check the current max user process setting, run `ulimit -u`. To check the current max open files setting, run `ulimit -n`. To change the limits, edit the following file and restart the server:

`/etc/security/limits.conf`

## 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.

## 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 A2.

## DPA repository database requirements

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

**i** 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>2019 (Windows or Linux)</li><li>2017 (Windows or Linux)</li><li>2016</li><li>2014</li></ul> <p>The latest Service Pack is supported unless otherwise noted.</p>
Azure SQL Database	Standard Service Tier or higher	V12

Database	Edition	Version
MySQL	<ul style="list-style-type: none"><li>• Community</li><li>• Enterprise</li></ul>	<ul style="list-style-type: none"><li>• 8</li><li>• 5.7</li><li>• 5.6</li><li>• Amazon RDS for MySQL 5.7</li><li>• Amazon RDS for MySQL 5.6</li><li>• Aurora 2.03 (compatible with MySQL 5.7)</li></ul>
Oracle	<ul style="list-style-type: none"><li>• Standard</li><li>• Enterprise</li></ul>	<ul style="list-style-type: none"><li>• 19 (single tenant and multitenant)</li><li>• 18.4 (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>

 Azure SQL Managed Instance (ASMI) is **not** supported as a DPA repository database.

-  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 host a self-managed Oracle, SQL Server, or MySQL database on Amazon EC2 to use as your repository.
  - If you choose Azure SQL Database 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.

## Self-managed repository database server requirements

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%**.

-  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	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: <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> $(5 \times 1 \text{ GB}) + (3 \times 3 \text{ GB}) + (2 \times 5 \text{ GB}) = 24 \text{ GB}$ Reserve at least 24 GB to provide adequate disk space for this repository database.			

**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.

## Requirements for an AWS DPA repository database server

The following RDS instance types are recommended for AWS deployments.

Hardware / Software	1 - 20 Monitored DB Instances	21 - 50 Monitored DB Instances	51 - 100 Monitored DB Instances	101 - 250 Monitored DB Instances
RDS instance type	db.m5.large	db.m5.large	db.m5.xlarge	db.m5.xlarge
CPUs	2	2	4	4
Database cache available for DPA	8 GB	8 GB	16 GB	16 GB

## Required administrator credentials

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

Repository database type	Credentials
SQL Server	SYSADMIN
Oracle	database administrator (DBA)
MySQL	repository administrator

 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
--------------------	--------------------------

 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 requirements

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.

Software	Version
VMware vCenter Server	<ul style="list-style-type: none"><li>• 6.7</li><li>• 6.5</li></ul>

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

## Supported web browsers

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

- Chromium-based version of Microsoft Edge: the latest stable version

**i** Internet Explorer (IE) and legacy versions of Microsoft Edge are **not** supported. If you access DPA using these browsers, some DPA functionality is not available or does not function correctly. For example, the Find SQL and Resources tabs are not accessible, and drop-down menus in other areas do not function correctly.

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

## Requirements for monitoring MySQL database instances

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, 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, 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, DPA can collect data for all metrics.

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

- Selects
- Inserts
- Updates
- Deletes

## Java requirements

DPA ships with JDK 15 for Windows and Linux and installs this version of Java on the DPA server. If you are installing DPA on a **supported** operating system, **no action** is required.

For **unsupported** operating systems, ensure that JDK 15 is installed on the DPA server. If you need to upgrade the JDK:

1. Download and install JDK 15.
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
```

# Install DPA

You can install DPA in any of the following environments:

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

You can also [Launch DPA on Amazon Web Services](#). AWS deployments use the AWS Marketplace Metering Service to calculate charges.

**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 the metering service 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.

**i** To install DPA on a different platform, see [Install DPA on Linux](#), [Install DPA on Azure Marketplace](#), or [Launch DPA on Amazon Web Services](#).

## Before you start

Before you install Database Performance Analyzer, be sure to review the [pre-installation checklist](#) and the [system requirements](#).

## Install DPA

1. Download the installation file from one of the following locations:
  - If you are installing a trial version, download it from <https://www.solarwinds.com/database-performance-analyzer>.
  - Otherwise, download it 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.

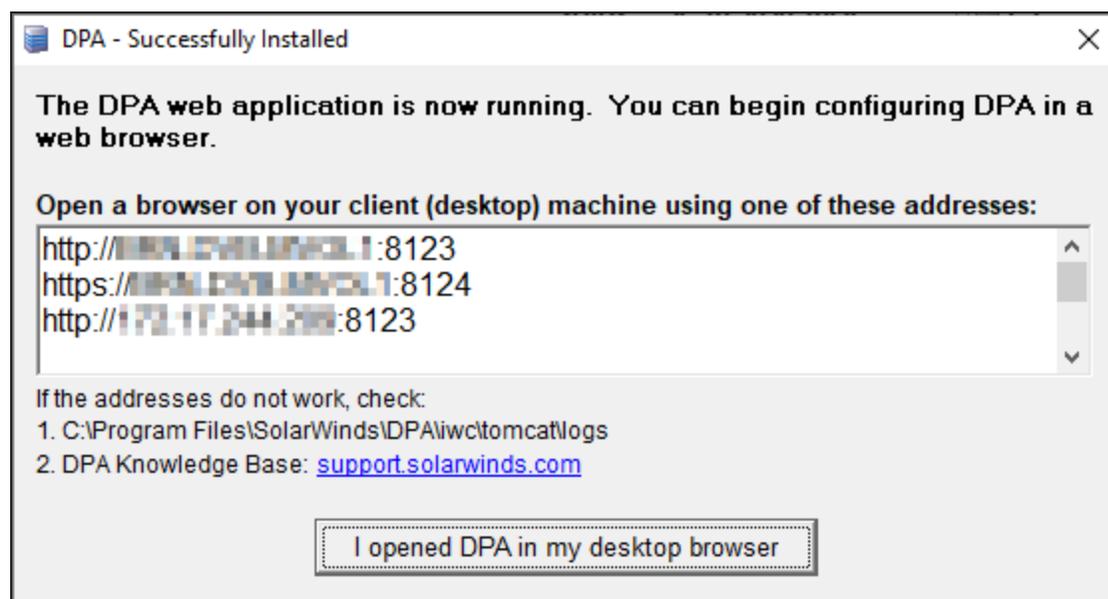
3. Extract the contents of the downloaded installation ZIP file.
4. Run `SolarWindsDPASetup-x64.exe`. When the installer starts, click Next.
5. If you accept the terms of the license agreement, select I accept. Click Next.
6. To change the default installation directory, click Change and specify the directory.
7. If the Do you want to configure Microsoft Defender check box is shown, select it if you want to create an exception to prevent Microsoft Defender from scanning the folder that stores the Find SQL indexes.

If the [Find SQL functionality](#) is enabled, this option can avoid spikes in CPU utilization. You can [manually create an exception after the installation](#).

 This check box is **not** shown if an exception already exists or if Microsoft Defender is not enabled.

8. Click Next, and then click Install to start the installation.
9. When the installation is complete, 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

**i** To install DPA on a different platform, see [Install DPA on Windows](#), [Install DPA on Azure Marketplace](#), or [Launch DPA on Amazon Web Services](#).

## Before you start

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

## Install the required fonts

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](#).

To install the fonts that DPA requires, run one of the following commands 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
```

## Download the installation file and verify the signature

To verify that the installation file is unmodified, use a public key to confirm that the signature of the installation file matches the signature of the corresponding `.sig` file.

1. Download the installation file and the corresponding `.sig` file from the [SolarWinds Customer Portal](#) or from the following direct download links:

- Installation

file:

<https://downloads.solarwinds.com/solarwinds/Release/DPA/2021.3.7388/SolarWinds-DPA-2021.3.7388-64bit.tar.gz>

- Signature

file:

<https://downloads.solarwinds.com/solarwinds/Release/DPA/2021.3.7388/SolarWinds-DPA-2021.3.7388-64bit.tar.gz.sig>

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

2. Copy the following public key into a file, name the file `public.pem`, and save it in the same directory as the `tar.gz` and `tar.gz.sig` files.

```
-----BEGIN PUBLIC KEY-----
MIGbMBAGByqGSM49AgEGBSuBBAAjA4GGAAQA0md4V9OCdJF2cZ73G2IqrW9G/3Ny
Qeh2jOwg0VJaCecsNxXmpsJVJ2YMQJHMBddB++c81ys3NLwUGsJswxm/rCMA7bN1
q/zOV3oCoDfvXN2B6o1kTMJNebF6VDBc+c2phlrkJDjctSSVigTxYpZ33bgX9IxZ
NImi0LvVvOSNaQiljR4=
-----END PUBLIC KEY-----
```

3. Run one of the following commands to verify the signature:

```
openssl dgst -sha512 -keyform PEM -verify public.pem -signature
<signature_file_name> <dpa_installer_file_name>
```

Expect: Verified OK

or

```
openssl dgst -binary -sha512 <dpa_installer_file_name> > digest.bin
openssl pkeyutl -verify -pubin -keyform PEM -inkey public.pem -in
digest.bin -sigfile <signature_file_name>
```

Expect: Signature Verified Successfully

## Install DPA

1. Create a directory to hold this version of DPA. For example: `/home/dpa`.
2. Extract the downloaded TAR installation file into the new directory.
3. 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
```

4. When prompted, create a directory on the server for installation. This becomes the DPA Home directory.
5. Start DPA by running the following command from the Home directory:

```
./startup.sh
```

## Next steps

Go to `https://yourServer:8124` in a web browser and [create the repository database](#).

## Deploy DPA in the Azure Marketplace

You can deploy 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 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.

 To install DPA on a different platform, see [Install DPA on Windows](#), [Install DPA on Linux or Unix](#), or [Launch DPA on Amazon Web Services](#).

## 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

1. Enter the basics such as VM name, VM credentials, and your location.
2. Click OK.

Size: Choose virtual machine size

1. Click a size based on your needs.
2. Click Select.

---

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 DPA 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 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](#)

 Azure SQL Managed Instance (ASMI) is **not** supported as a DPA repository database. See the [system requirements](#) for more information.

### 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, ports 8123 and 8124 must be open.
- The 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:yourServer:8123`
- `https:yourServer: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.

Panel	Instructions
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.<p>If Mixed Mode was selected during the SQL Server installation, you can choose either option.</p></li><li>3. Enter a SYSADMIN login that DPA can use to create the repository.<div data-bbox="446 688 1513 787" style="border: 1px solid #ccc; padding: 5px;"><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></li><li>4. If you are installing DPA <b>2021.3.7388</b> or <b>2021.3.7438</b> and you chose Windows Authentication and entered a domain user, add the following connection properties:<ol style="list-style-type: none"><li>a. Click Advanced Connection Properties.</li><li>b. Under JDBC URL Properties, enter:<pre>authenticationScheme=NTLM;integratedSecurity=true</pre><div data-bbox="446 1409 1513 1507" style="border: 1px solid #ccc; padding: 5px;"><p> Adding these connection properties is not necessary for DPA 2021.3.7445 and later.</p></div></li></ol></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 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 <code>dpa_</code> 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. 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, ports 8123 and 8124 must be open.
- The 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:yourServer:8123`
  - `https:yourServer: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>DPA requires a DBA user with privileges to create a 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>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>Direct Connect</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 data-bbox="636 793 1502 856" style="border: 1px solid orange; padding: 5px;"><p> Do not use a critical production database.</p></div>
	<p>Transparent Network Substrate (TNS) Connect Descriptor</p> <p>The Connect Descriptor value contains everything after NAME= in the <code>tnsnames.ora</code> file. The beginning (DESCRIPTION= 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>Lightweight Directory Access Protocol (LDAP) or TNS Name</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> <div data-bbox="305 562 1515 1150" style="border: 1px solid #00a6c9; padding: 10px; margin: 10px 0;"> <p style="text-align: center; margin: 0;"><b>Minimum Oracle Parameters</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><code>db_block_buffers</code> (or <code>db_cache_size</code>)</td> <td style="padding: 5px; text-align: right;">&gt; 100 MB per monitored database</td> </tr> <tr> <td colspan="2" style="padding: 5px; background-color: #fff9c4; border: 1px solid #ccc;">  This is a critical parameter.                     </td> </tr> <tr> <td style="padding: 5px;"><code>shared_pool_size</code></td> <td style="padding: 5px; text-align: right;">&gt; 50 MB</td> </tr> <tr> <td style="padding: 5px;"><code>sort_area_size</code></td> <td style="padding: 5px; text-align: right;">&gt; 4 MB</td> </tr> <tr> <td style="padding: 5px;"><code>log_buffer</code></td> <td style="padding: 5px; text-align: right;">&gt; 1 MB</td> </tr> <tr> <td style="padding: 5px;"><code>session_cached_cursors</code></td> <td style="padding: 5px; text-align: right;">&gt; 10</td> </tr> <tr> <td style="padding: 5px;">Redo Log Size (select min(bytes) from v\$log)</td> <td style="padding: 5px; text-align: right;">&gt; 10 MB</td> </tr> </table> </div>	<code>db_block_buffers</code> (or <code>db_cache_size</code> )	> 100 MB per monitored database	 This is a critical parameter.		<code>shared_pool_size</code>	> 50 MB	<code>sort_area_size</code>	> 4 MB	<code>log_buffer</code>	> 1 MB	<code>session_cached_cursors</code>	> 10	Redo Log Size (select min(bytes) from v\$log)	> 10 MB
<code>db_block_buffers</code> (or <code>db_cache_size</code> )	> 100 MB per monitored database														
 This is a critical parameter.															
<code>shared_pool_size</code>	> 50 MB														
<code>sort_area_size</code>	> 4 MB														
<code>log_buffer</code>	> 1 MB														
<code>session_cached_cursors</code>	> 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>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>														
Specify Tablespaces for the Repository	<p>DPA stores the Oracle repository in tablespaces.</p> <ol style="list-style-type: none"> <li>1. Select a tablespace where DPA stores performance data.</li> <li>2. Select a temporary tablespace for the DPA repository user.</li> </ol>														

Panel	Instructions
Contact Information	Enter your name and email. 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 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, ports 8123 and 8124 must be open.
- The DPA server connects to the repository through a TCP/IP connection. Make sure that connection is not blocked by a firewall.

### Run the wizard

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

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

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

Panel	Instructions
Select Repository Database Instance Type	Select MySQL as the database type.
Enter Repository Connection Information	DPA creates a new database and populates it with tables, indexes, and initial data. <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 user.</li></ol>
	<p><b>i</b> If you are using MySQL 8.0 as the repository database, you must create the repository user manually, and you must include the following in the <code>CREATE USER</code> command:</p> <pre>IDENTIFIED WITH mysql_native_password BY 'yourPassword';</pre>
	<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 <code>&lt;databaseName&gt;</code> 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. DPA encrypts the password.</li></ol>
	<p>Alternatively, you can use the script that 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>

Panel	Instructions
Enter Repository Login	<p>If you provided the repository user in the previous step, the wizard skips this step.</p> <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. 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>
Specify Database for the Repository	<p>To store the repository in a new database, enter a database name. 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 data-bbox="365 997 1510 1102"><p> 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 DPA, select the database from the list.</li><li>• If you provided a privileged user, DPA only displays tables with Select permissions granted to the privileged user.</li><li>• If you provided the repository user, DPA only displays tables with Select permissions granted to the repository user.</li><li>• No database permissions are required while using the privileged user. 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	<p>Enter your name and email. 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 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.

**⚠** Azure SQL Managed Instance (ASMI) is **not** supported as a DPA repository database. See the [system requirements](#) for more information.

## Before you start

Before you run the Repository wizard:

- Create a database in Azure SQL Database.
- The 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.

Panel	Instructions
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 to 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>
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	<p>Enter your name and email. DPA sends database performance reports to this address.</p>
Summary	<p>Review the information and click Create Repository.</p>

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.

# 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. To uninstall DPA from a self-managed server, 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 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

Use the following information to prepare for your upgrade.

## Supported upgrade paths

The supported upgrade paths are:

- DPA 11.1 → DPA 12.1 → 2021.3.7445
- DPA 12.0 → DPA 12.1 → 2021.3.7445
- DPA 12.1 → 2021.3.7445
- DPA 2019.4 → 2021.3.7445
- DPA 2020.2 → 2021.3.7445
- DPA 2021.1 → 2021.3.7445

## DPAIM compatibility

If you are **not** monitoring PostgreSQL database instances, DPA 2021.3.7445 is fully compatible with DPAIM 11.1 or later.

If you are monitoring PostgreSQL database instances, DPAIM 2020.2 or later is required to display all available data from PostgreSQL instances in the Orion Platform.

## My upgrade plan checklist

Use this checklist to help plan and prepare for your upgrade.

- Review the [release notes](#) for information about new features, fixed issues, and known issues.
- Review the [system requirements](#) to make sure your environment meets all hardware and software requirements.
- 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 [contact SolarWinds](#).
- Gather **credentials**. Make sure you have your SolarWinds account and local administrator credentials for the DPA server.

- Check for and run all Windows or Linux **operating system updates**.
- 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 short period of time.
- Notify** 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.

 If you are upgrading on a Linux server and FindSQL index files are stored in the `ignite_config` folder (which is the default location), copying the `ignite_config` folder can take more than 10 minutes because of the index file sizes.

## 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.

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

---

[Stop DPA.](#)

---

## 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

Open DPA and verify the version displayed on the login screen or in the header on the home page. Try current and new features to check performance and expected functionality.

## Upgrade DPA on Windows

1. Review the [upgrade checklist](#) and prepare your environment.
2. Download the most recent version of DPA from the [SolarWinds Customer Portal](#).
3. Log in to the Windows server as an administrator.
4. Run the installer.
5. Extract the contents of the downloaded installation ZIP file.
6. Run `SolarWindsDPASetup-x64.exe`. When the installer starts, click Next.
7. If you accept the terms of the license agreement, select I accept. Click Next.
8. If the Do you want to configure Microsoft Defender check box is shown, select it if you want to create an exception to prevent Microsoft Defender from scanning the folder that stores the Find SQL indexes.

If the [Find SQL functionality](#) is enabled, creating an exception can avoid spikes in CPU utilization. You can [manually create an exception after the installation](#).

 This check box is **not** shown if an exception already exists or if Microsoft Defender is not enabled.

9. Click Next, and then click Install to start the upgrade.
10. When the upgrade is complete, click Finish.

 If one or more DPA licenses are expired, you must remove the expired licenses before DPA can complete the repository upgrade. When all licenses are compliant, you can complete the upgrade process by opening DPA and clicking Proceed with upgrade.

## Upgrade DPA on Linux

1. Review the [upgrade checklist](#) and prepare your environment.
2. Download the most recent version of 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 DPA home

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

```
/iwc/tomcat/conf/  
/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/
```

 Copying Find SQL index data might take some time.

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.
- If you have [configured DPA to use a custom certificate for SSL/TLS](#), migrate the custom certificate.

**i** If one or more DPA licenses are expired, you must remove the expired licenses before DPA can complete the repository upgrade. When all licenses are compliant, you can complete the upgrade process by opening DPA and clicking Proceed with upgrade.

## Upgrade DPA on an Amazon Machine Image instance

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

1. Open a remote connection (SSH) and log in to your DPA instance in Amazon EC2.
2. Download the most recent version of SolarWinds DPA. Use the link provided in the new version notification banner.

**i** 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.

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

```
cmd> crontab -r
```

4. [Install the new version](#) in a new directory on your existing server.
5. Run `./shutdown.sh` from the old installation directory.
6. 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 DPA home
```

7. 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
```

8. 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.
9. Run `./startup.sh` from the new directory.
10. 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 DPA instance in the Azure Marketplace.

3. Download the most recent version of DPA from the [SolarWinds Customer Portal](#).
4. Run the installer, and follow the wizard.