



INSTALLATION GUIDE

# Help Desk Manager

Version 12.7.3

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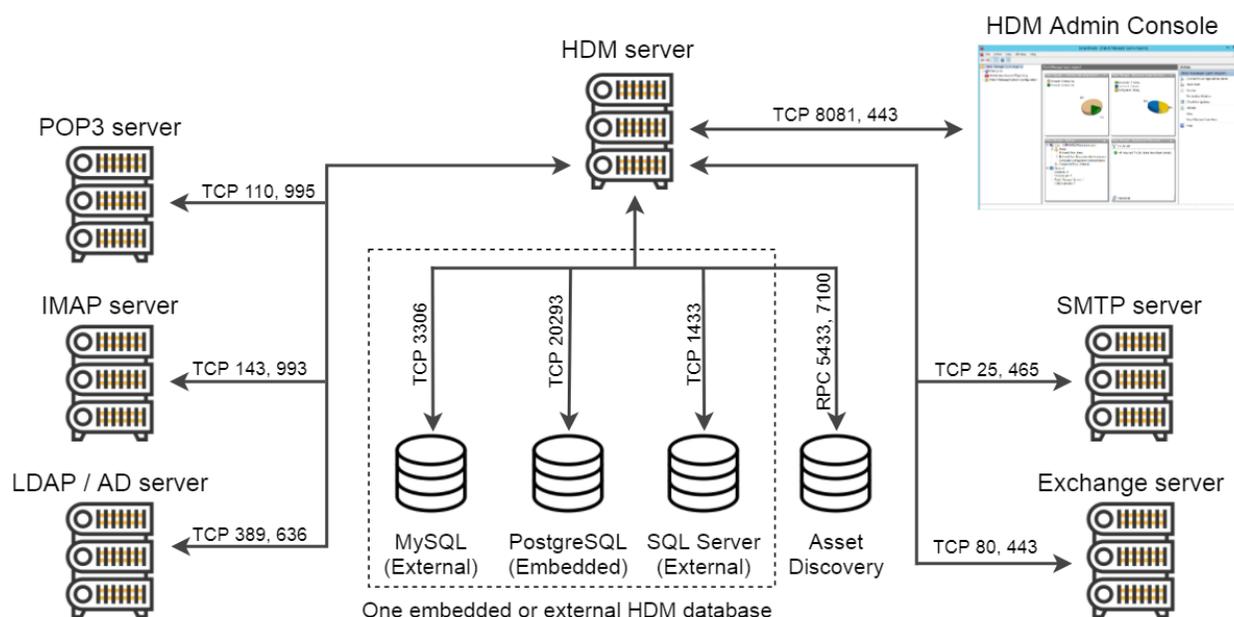
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# Introduction

Help Desk Manager (HDM) by SolarWinds®MSP is a web-based automated ticketing solution that helps you manage your IT support requests for both internal and external clients. Use Help Desk Manager to create and manage tickets through the web console. It also supports email ticket creation, automatic ticket assignment and escalation, asset management, and incident and problem management.

## Architecture

The following illustration provides a high-level view of HDM in a stand-alone installation. In this example, HDM is installed on a dedicated server with your choice of an embedded PostgreSQL database or an external database such as MySQL or Microsoft SQL Server.



# Requirements

SolarWinds MSP recommends reviewing the following requirements before you install, upgrade, or migrate your software:

- [Server requirements](#)
- [Database requirements](#)

## Server requirements

The following sections list the minimum hardware and software requirements for installing HDM.

### Hardware

COMPONENT	REQUIREMENTS
CPU	64-bit Dual Core 2.0 GHz or faster
RAM	4 GB (up to 20 technicians) 3 GB (more than 20 technicians) plus 1 GB for every 10 additional technicians
Hard Drive Space	20 GB
Java Platform	Open Java Development Kit (OpenJDK) 14

### Web server

PRODUCT	VERSION
Apache Tomcat	9.0.37

### Operating system

PLATFORM	SUPPORTED VERSIONS
Microsoft Windows Server	Windows Server 2012 R2 (64-bit) Windows Server 2016 Windows Server 2019
Microsoft Windows (Trial evaluation only)	Windows 7 (64-bit) Windows 8.1 (64-bit) Windows 10 (64-bit)
Red Hat Enterprise Linux (RHEL)	RHEL 6.5 (64-bit)

PLATFORM	SUPPORTED VERSIONS
	RHEL 7.0 (64-bit)
CentOS	CentOS 6.5 (64-bit) CentOS 7.0 (64-bit)
Fedora	Fedora 24 (64-bit) Fedora 25 (64-bit)

### Web browser

TYPE	SUPPORTED VERSIONS
Google Chrome	Latest version
Mozilla Firefox	Latest version
Microsoft Internet Explorer® (IE)	IE11
Apple Safari	Safari 10 Safari 11
Microsoft Edge	Version 38 and later

### Server sizing requirements

SolarWinds MSP recommends installing HDM on a host server with a 64-bit Dual Core 3.0 GHz or faster CPU. If you support a large number of techs, consider upgrading your existing hardware configuration.

#### Deployment with fewer than 20 techs

If you plan to support 20 tech sessions or fewer in your deployment, you can run HDM on a system with:

- A supported operating system
- A 32-bit Java Virtual Machine (JVM)
- 4 GB RAM (up to 3.7 GB for the tech sessions, JVM support, operating system, and any additional services you need to run on the system)

This configuration supports 10 - 20 tech sessions with no onboard memory issues.

#### Deployment with more than 20 techs

If you plan to support more than 20 tech sessions in your deployment, SolarWinds MSP recommends installing HDM on a system running:

- A supported operating system
- A 64-bit JVM
- 3 GB RAM for 20 tech sessions plus 1 GB RAM for each additional 10 tech sessions

## Database requirements

HDM uses an embedded PostgreSQL database as its standard database.

The following table lists the supported database software products.

DATABASE	SUPPORTED VERSIONS
PostgreSQL	PostgreSQL 9.2 PostgreSQL 9.3.2 PostgreSQL 9.4 PostgreSQL 9.6
MySQL	MySQL 5.7
Microsoft SQL Server	SQL Server 2008 R2 SP3 SQL Server 2012 SP2 SQL Server 2014 SQL Server 2016 SQL Server 2017

**i** For optimal external database performance, run HDM and a supported external database on separate servers.

## Database hardware requirements

The following table lists the minimum hardware requirements for a database server running SQL Server or MySQL with HDM.

COMPONENT	REQUIREMENTS
CPU	64-bit Dual Core 3.0 GHz or higher
Hard drive space	20 GB
RAM	3 GB with 1 GB additional RAM for every additional 10 techs

# Prepare the HDM database

HDM supports the following databases:

- Embedded PostgreSQL
- MySQL
- Microsoft SQL Server Standard or Enterprise Edition

 If your HDM deployment requires database management features such as failover clusters, do not use the embedded PostgreSQL database included with HDM. Failover clusters are not available with the embedded PostgreSQL database.

 To prevent database errors in the application, do not modify the default schemas.

If you choose embedded PostgreSQL as your primary database, HDM installs the database on the HDM server during the installation. No additional configuration is required.

If you choose non-embedded, non-default SQL Server or MySQL as your primary database, install the database engine and management tools on a separate server prior to installing HDM. See the [Microsoft Docs](#) or [MySQL](#) website for installation instructions.

Install SQL Server or MySQL on a dedicated drive with at least 20 GB of space to accommodate the database engine, management tools, help desk tickets, and ticket file attachments. You can also configure HDM to use a new SQL Server database instance on an existing server running SQL Server.

After you install the MySQL software, prepare the MySQL time zone tables.

After you install the SQL Server software, enable TCP/IP on the SQL server and create and configure your SQL Server database.

## Prepare the MySQL time zone tables

If you choose non-embedded, non-default MySQL as your primary database, install the database and manually populate your time zone system tables.

You can search for tickets using two new qualifiers: Due Date and First Call Resolution. These qualifiers rely on data located in four MySQL system tables:

- `time_zone`
- `time_zone_name`
- `time_zone_transition`
- `time_zone_transition_type`

These tables are created when you install MySQL in your deployment, but are not populated by default with data. HDM requires this data because the Due Date and First Call Resolution qualifier logic is implemented from within the database. If the database is missing time zone data, these qualifiers do not work properly.

When you install your MySQL database, be sure to manually populate these system tables with time zone data. See the [MySQL website](#) and follow the instructions for MySQL Server time zone support.

You can check the system tables by executing the following query:

```
SELECT * FROM mysql.time_zone
```

If the query does not create new table rows, the tables are not populated with data.

## Enable TCP/IP on SQL Server

Configure the following settings in the SQL Server Configuration Manager.

SETTING	VALUE
TCP/IP Protocol	Enabled in SQL Server Network Configuration > Protocols for SQL 20xx
IP Address	127.0.0.1 (if installed on the Help Desk Manager server) Server IP address (if installed on a separate server)
TCP Port	1433
<b>IPAll</b>	
TCP Dynamic Ports	Blank
TCP Port	1433

## Create and configure your SQL Server database

Configure the following settings in the SQL Server Management Studio for SQL Server to create and configure SQL Server to the Help Desk Manager database instance.

SETTING	VALUE
SQL Server and Windows Authentication Mode	Enabled
Login Name	whd
SQL Server Authentication: Password	Enabled and configured

SETTING	VALUE
SQL Server Authentication: Enforce password policy	Disabled
SQL Server Authentication: Enforce password expiration	Disabled
SQL Server Authentication: User must change password at next login	Disabled
Database name	whd
Database owner	whd

# Install HDM

This section describes how to install HDM on systems running Windows Server or Linux operating systems.

See the following procedures for details.

- [Prepare for the installation](#)
- [Prepare the HDM server](#)
- [Install HDM on a Windows system](#)
- [Install HDM on a Linux system](#)
- [Complete the installation](#)

## Prepare for the installation

Before you install HDM, complete the pre-installation checklist below. This checklist helps you:

- Verify that system requirements are met, all required software is installed, and required roles and features are enabled.
- Gather the information required to complete the installation.

<input type="checkbox"/>	Review the release notes	The release notes describe new features, fixed issues, and workarounds for known issues.
<input type="checkbox"/>	Review the system requirements	Make sure your environment meets the hardware, software, and database requirements for the installation.
<input type="checkbox"/>	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.
<input type="checkbox"/>	Check for anti-virus software	<p>Determine if any antivirus software is installed on the server or servers where you plan to install the application. To ensure the installation goes smoothly, exclude the &lt;HelpDeskManager&gt; directory.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> Do not exclude executable files. SolarWinds assumes that C:\ is the default volume.</p> </div>
<input type="checkbox"/>	Gather the credentials	<p>Make sure you have all account credentials, SQL database credentials, your SolarWinds account, and local admin server credentials.</p> <p>Use the Local Administrator Account for installation.</p> <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>

		<p><b>i</b> To download SolarWinds products and licenses, you need a SolarWinds customer account.</p>
<input type="checkbox"/>	Schedule the installation	Set up the maintenance window, preferably during off-peak hours. Depending on the number of products, size of databases, and size of environment, you may need additional time to complete the installation.
<input type="checkbox"/>	Open ports according to requirements	For the firewall and server ports, open the required ports based on the server port requirements described in the requirements. HDM uses these ports to send and receive data.
<input type="checkbox"/>	Prepare the product license	<p>Review the current product license and determine if you need to make any changes. You can download updated license keys through the Customer Portal.</p> <p>If you need to modify your licenses, contact your SolarWinds account manager or SolarWinds Customer Sales.</p>

## Prepare the HDM server

Complete the following checklist on the HDM server. This checklist helps you:

- Verify that the server is set up and configured for an HDM deployment
- Gather the information required to complete the installation

<input type="checkbox"/>	1. Prepare a server for the HDM deployment	<p>Verify that the server:</p> <ul style="list-style-type: none"> <li>■ Meets the CPU, RAM, and hard drive space requirements.</li> <li>■ Is running a supported operating system.</li> <li>■ Is not a domain controller.</li> <li>■ Is configured on your corporate network.</li> <li>■ Is accessible to all HDM techs and administrators.</li> <li>■ Can access the following servers:                             <ul style="list-style-type: none"> <li>■ Active Directory or LDAP (for Windows deployments)</li> <li>■ POP3</li> <li>■ IMAP</li> <li>■ SMTP</li> <li>■ Microsoft Exchange</li> <li>■ External database (for MySQL or SQL Server deployments only)</li> </ul> </li> </ul>
<input type="checkbox"/>	2. Install the most recent updates for your operating	<p>Verify that all updates are installed on the server.</p> <p>For Windows systems, check for the latest updates and service packs using Windows Update.</p>

	system	For Linux systems, check for updates by executing the following command in a terminal window:  <code>sudo apt-get upgrade</code>
<input type="checkbox"/>	3. Set the server to the correct time	Synchronize the server time with Greenwich Mean Time (GMT).   If the server time is off by five minutes in either direction from GMT, you must contact SolarWinds Customer Service to reset your license.
<input type="checkbox"/>	4. Set the Region and Language setting to English (United States)	See the documentation included with your operating system.
<input type="checkbox"/>	5. Open ports according to the requirements	For your server ports and firewall, open ports according to the port requirements.
<input type="checkbox"/>	6. Check for anti-virus 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 SolarWinds directory.

## Install HDM on a Windows system

Perform the following steps to install a production or evaluation copy of HDM on a server running a supported Windows Server operating system:

1. Download the installer from the SolarWinds Customer Portal.
2. Extract the contents of the ZIP file.

The `N-ableHelpDeskManager-12.7.3-x64.zip` file includes the following files:

- `N-ableHelpDeskManager-12.7.3-x64.exe`, which installs HDM and the latest hotfix (if available) on a stand-alone 64-bit server.
- `N-ableHelpDeskManager-12.7.3-x64_14_days.exe`, which includes the 14-day evaluation version.
- `N-ableHelpDeskManager-12.7.3.x-1.x86_64.rpm`, which installs HDM on a Linux server.

3. Run the installation file.
  - a. Right-click `N-ableHelpDeskManager-12.7.3-64.exe` and select Run as Administrator.
  - b. Complete the on-screen instructions.
  - c. When the installation is complete, click Done.

The Configuration Wizard opens the default browser.

4. [Complete the installation.](#)

## Uninstall Help Desk Manager on a Windows system

1. Quit all running programs.
2. Using an account with local administrative privileges, log in to the server that hosts the application.
3. Navigate to:  
`C:\Program Files\N-able Technologies\Help Desk Manager`
4. In the Help Desk Manager directory, double-click `UNINSTALL.bat`.  
A command prompt window displays with a message prompting you to verify the uninstall.
5. In the command prompt window, enter `Y` to continue.  
HDM and its associated data are uninstalled from the system.
6. Close the command prompt window.

## Install Help Desk Manager on a Linux system

Perform the following steps to install a production or evaluation copy of HDM on a server running Linux:

1. Download the installation file from the SolarWinds Customer Portal.
2. Open a terminal window and execute:  
`gunzip n-ablehelpdeskmanager-12.7.3.x86_64.rpm.gz`  
The uncompressed file includes the following file:  
`n-ablehelpdeskmanager-12.7.3.x86_64.rpm`
3. Run the installation file.  
Open a terminal window and execute:  
`sudo rpm -ihv n-ableHelpDeskManager-12.7.3.21-1.x86_64.rpm`
4. Start the HDM service.  
In the terminal window, execute:  
`/usr/local/N-able Technologies/HelpDeskManager/WHM start`
5. Launch a web browser and navigate to:  
`https://127.0.0.1:8443`  
where 8443 is the secure default port. If you log in using unsecure port 8081, a warning displays, indicating that the connection is not private.
6. [Complete the installation.](#)

## Uninstall Help Desk Manager on a Linux system

1. Quit all running programs.
2. Using an account with local administrative privileges, log on to the server that is hosting HDM.
3. Run the uninstaller using one of the following commands:  
`yum remove n-ablehelpdeskmanager.x86_64`  
The uninstall is completed.

## Complete the installation

When the installation is completed, the Configuration Wizard runs on secure port 8443 in the default browser. Complete the wizard, and then enable and configure the 64-bit Java Virtual Machine (JVM) memory on the HDM server (if applicable).

 If you log in using unsecure port 8081, a warning displays, indicating that the connection is not private.

1. If prompted to set up Internet Explorer security settings, select an option, and click OK.
2. Select a database for your HDM installation.  
If you select Use the PostgreSQL database (recommended), click Next and go to [step 4](#).  
If you select Use Custom SQL database (advanced), click Next and go to [step 3](#).
3. If HDM will be configured with an SQL Server database, set up the custom SQL Server database in the Select your database window. Otherwise go to [step 4](#).
  - a. In the Database field, select the database.
  - b. Complete the remaining fields, and then click Test to test the database connection.
  - c. To create an account on the database, click Create database and user account if necessary, enter the admin user name and password, and click Create.
  - d. When you establish a connection with the database, click Next.

#### 4. Set up the email accounts.

- a. Complete the fields as required to configure the incoming and outgoing email accounts.

Each incoming mail account is associated with a specific request type, an optional tech group, and an outgoing mail account (SMTP server) used to deliver outgoing mail. For example, you could have an incoming mail account for all IT tickets, another account for HR tickets, and another for Facilities tickets.

HDM checks the incoming mail accounts each minute for new messages, processes the messages into tickets, and deletes the processed messages from the incoming mail server.

 If you are not ready to set up the email accounts, you can skip this step and set up the email accounts later from the HDM Web Console. To continue without configuring email, click Skip this step.

- b. Expand Advanced to set up the incoming mail ports.

The incoming mail ports menu displays.

- c. In the Incoming Mail Port field, enter the port number for incoming mail.

 By default, HDM uses your first configured incoming mail account request type as the default. After you complete the Getting Started Wizard, you can update your email account information at Setup > E-Mail.

- d. In the SMTP port field, enter the port number for outgoing mail.

- e. Complete the remaining fields and check boxes as required.

- f. Click Test to test your email address.

If the email connection is good, a confirmation message displays.

If the email connection is not good, verify the Test Email Addresses field value and then click Test.

- g. Click Next to continue.

#### 5. Complete the fields to create the default admin account.

The default admin account is a local super user account used to:

- Log in to HDM for the first time and configure the application.
- Access all HDM settings and accounts.

Administrators with a default admin account can create all user accounts, including additional admin accounts. The default admin account includes tech account privileges so you can create and process tickets with tech privileges. Techs can have either Tech or Tech Admin account privileges.

#### 6. Click Next to continue.

 After you click Next, the Getting Started Wizard is no longer accessible. To change your settings after you initialize the application, click Setup in the HDM Admin Console menu bar and select a setup option.

7. (Optional) Create one or more custom request types.

When you install HDM, the last step of the HDM Getting Started Wizard allows you to add request types or edit preconfigured request types. This step of the wizard is optional.

You may find it easier to add request types in the Tickets panel after HDM is configured.



SolarWinds recommends that you click Finish to bypass this step in the wizard and take time to plan the request types you need. See the HDM Administrator Guide for information about creating request types.

8. Click Finish.

The Configuration Wizard applies your settings and configures the application.



This process may take several minutes to complete.

9. Click Login as admin to continue the setup.

10. If you agree with the License Agreement, click Continue.

The Wizard opens the HDM Administrator Console on port 8443 using HTTPS.

HDM is installed on your server.

11. Click Done to exit the installer.

12. Enable the 64-bit Java Virtual Machine (JVM) memory.

a. On the HDM server, navigate to the `<HelpDeskManager>/conf` directory.

- Microsoft Windows: `\Program Files\N-ableTechnologies\HelpDeskManager\conf`
- Linux: `/usr/local/N-ableTechnologies/HelpDeskManager/conf`

b. Open the `whd.conf` file with a text editor (such as Notepad).

c. Add the following argument to the `JAVA_OPTS` option:

```
JAVA_OPTS="-d64"
```

d. Save your changes.

13. Increase the JVM memory.

HDM requires additional max heap memory than the JVM memory default. After you enable the JVM, increase the `MAXIMUM_MEMORY` value in the `whd.conf` file and restart HDM.

a. Determine the appropriate amount of memory for your deployment using the following formula:

$(\text{Average number of concurrent techs} \times 150) + (\text{Average number of concurrent users} \times 25) = \text{MAXIMUM\_MEMORY value}$

For example, If the average number of concurrent techs is 10 and the average number of concurrent users is 50, the recommended `MAXIMUM_MEMORY` value is 2750 (which is 2.75 GB):  
 $(10 \times 150 = 1500) + (50 \times 25 = 1250) = 2750$



The `MAXIMUM_MEMORY` value should not be greater than the total memory in the HDM server.

b. Update the `whd.conf` file for your [Microsoft Windows Server](#) or [Linux](#) operating system.

## Update the whd.conf file for Windows Server

1. Navigate to the HDM directory located at:  
C:\Program Files\N-able Technologies\HelpDeskManager
2. Open the \conf directory.
3. Open the whd.conf file in a text editor (such as Notepad).
4. In the whd.conf file, locate the MAXIMUM\_MEMORY parameter.

```
# -----  
# Memory allocation  
#  
# MAXIMUM_PERM_MEMORY is the maximum size of the Java  
# permanent-generation heap. 256MB should be sufficient  
# for most installations. If a lower value is provided  
# it will be replaced by the minimum size (256MB) on startup.  
  
MINIMUM_MEMORY=256  
MAXIMUM_MEMORY=3072  
MAXIMUM_PERM_MEMORY=256  
  
# -----
```

5. Change the parameter value to the value you calculated in an earlier step.
6. Save and close the file.
7. Restart Web HDM.
  - a. In the Help Desk Manager directory, right-click whd\_stop.bat and select Run as Administrator.
  - b. After the command prompt window closes, right-click whd\_start.bat and select Run as Administrator.

## Update the whd.conf file for Linux

1. Open a terminal window
2. Change the directory to the <HelpDeskManager>/conf directory.  
Type:  
cd /usr/local/N-able Technologies/HelpDeskManager/conf
3. Open the whd.conf file.  
Type:  
sudo vi whd.conf
4. Change the maximum JVM to the appropriate value.  
Execute:  
:%s/MAXIMUM\_MEMORY=512/MAXIMUM\_MEMORY=[memory in MB]/ :wq  
For example, if you want to change the value to 2750 MB, type:  
:%s/MAXIMUM\_MEMORY=512/MAXIMUM\_MEMORY=2750/ :wq

5. Save and close the file.
6. Restart HDM.
  - a. In the terminal window, execute:  

```
sudo service webhelpdesk stop
```
  - b. In the terminal window, execute:  

```
sudo service webhelpdesk start
```

# Upgrade HDM

This section describes how to upgrade HDM from a currently-supported version to the latest version.

See the following procedures for details:

- [Prepare for the upgrade](#)
- [Determine the upgrade path](#)
- [Upgrade gotchas you should review](#)
- [Perform the upgrade](#)
- [Check your HDM system after the upgrade](#)

## Prepare for the upgrade

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

<input type="checkbox"/>	Check your HDM version	You must be running version 12.6 or later before upgrading to 12.7.3.
<input type="checkbox"/>	Review the release notes	Review the product release notes and available documentation in the Customer Success Center.
<input type="checkbox"/>	Review the system requirements	Make sure your environment has all required hardware and software requirements for your installations. You may need to also check the administrator guide for each product to locate the requirements.
<input type="checkbox"/>	Review the 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 contact SolarWinds Support for assistance.
<input type="checkbox"/>	Do you need to migrate?	<p>You may need to migrate HDM to a new server running an identical or disparate operating system. Check if you need to migrate by reviewing new requirements, your products, and your current environment.</p> <div style="border: 1px solid #add8e6; padding: 5px; margin-top: 10px;"> <p> Migrating adds time to your upgrade, but you have the best opportunity to update to new servers during an upgrade.</p> </div>
<input type="checkbox"/>	Back up the database	<p>Back up your HDM SQL Server database. If you need help, check your vendor site for documentation and instructions.</p> <div style="border: 2px solid #ffcc00; padding: 5px; margin-top: 10px;"> <p> You cannot roll back an upgrade. Always create a database backup.</p> </div>
<input type="checkbox"/>	Exclude files on the anti-virus	To ensure the best performance on your server host and provide full file access, exclude specific file paths and directories from anti-virus software scans.

software	 You can also place your systems behind a firewall to completely disable your anti-virus software during an upgrade.
<input type="checkbox"/> Gather credentials	Make sure you have all account credentials, database credentials, your SolarWinds account credentials, and local admin server credentials.
<input type="checkbox"/> Run all Windows updates	Run all Windows updates on your HDM server and all additional web servers. If a Windows update runs during the upgrade, your system may reboot as required by the operating system.
<input type="checkbox"/> Schedule the upgrade	Set up the maintenance window, preferably off-peak hours. Depending on the number of products, size of database(s), and size of environment, you may need an extended amount of time to complete the upgrade.
<input type="checkbox"/> Notify your company	Send a message to your company regarding the upgrade schedule and maintenance window. If you need additional help, contact and allocate specific staff to be available.

## Determine the upgrade path

The following table lists the upgrade paths from all supported HDM versions to the latest version.

HDM VERSION	UPGRADE PATH
12.4	12.5.2 > 12.6 > 12.7.3
12.5.2	12.6 > 12.7.3
12.6	12.7.3
12.7.1	12.7.3
12.7.2	12.7.3

## Upgrade gotchas you should review

Review the following gotchas before you upgrade HDM.

- You must be running WHD 12.6 or later to upgrade to the latest version.
- If you are upgrading from a version prior to HDM 12.6, you may want to install a new product instead of performing an upgrade, saving or migrating your data. SolarWinds Customer Support can provide the best advice for these upgrade scenarios.
- Ensure that all techs have tech and client accounts to access HDM. All techs must access their tech account using their client account or their HDM tech user name and WHD password (which can be reset using the secure password reset logic).

- If you are upgrading from HDM 12.7.1 or later with a MySQL database, the installer replaces Oracle Java with the Open Java Development Kit (OpenJDK). This update modifies the HDM home directory structure, deleting the previous MySQL JDBC driver directory. To prevent errors in the application, reinstall the MySQL JDBC driver to the new directory after you complete the upgrade.
- If you are upgrading from HDM 12.7.1 or later with a Microsoft SQL Server database and the installer generates an error, rerun the install as an administrator and select Upgrade/Repair when prompted.
- Always check that you have enough hard drive space for zipped and unzipped installers. One unzipped installer can consume a couple gigabytes of space.
- If you are migrating your database using a third-party tool, contact the tool vendor for assistance.
- If you are migrating your PostgreSQL database to a new server, restore the database after you upgrade HDM to the latest version. You can also back up and restore the PostgreSQL database using a command line.
- If your deployment requires database management features such as failover clusters, use any supported DBMS except the embedded PostgreSQL database included with HDM. Failover clusters are not available with the embedded PostgreSQL database.
- If you added code, such as .jar files provided by SolarWinds Customer Support, the code may be overwritten during the upgrade.
- Consider updating your web browser with the latest updates and patches. This will prevent any issues with using HDM after the upgrade.

## Perform the upgrade

 If you have a test or staging environment, SolarWinds highly recommends testing the upgrade first. You cannot roll back an installation once it's completed.

 The upgrade may add new database tables, but the procedure does not impact your database and database table data.

1. Back up your data.
  - a. Back up your HDM server.
  - b. Back up any database server associated with HDM.
  - c. Navigate to `<HelpDeskManager>\conf\` and back up your current `tomcat_web_template.xml` file to an external directory.
2. (Optional) Select a database that supports failover clusters.

If your deployment requires database management features such as failover clusters, select any supported DBMS except the embedded PostgreSQL database included with Help Desk Manager. Failover clusters are not available with the embedded PostgreSQL DBMS.
3. (SQL Server and MySQL only) Install the database management tools.

If you use the non-embedded, non-default Microsoft SQL Server or MySQL as your primary database, install the database engine and management tools according to the instructions included with your software.

Install the database on a dedicated drive with at least 20 GB of space to accommodate the database engine, management tools, help desk tickets, and ticket file attachments.

#### 4. (MySQL only) Prepare the time zone tables.

If you use the non-embedded, non-default MySQL as your primary database, install the database and manually populate your time zone system tables with data.

Beginning in version 12.5, you can search for tickets using two new qualifiers:

- Due Date
- First Call Resolution

These qualifiers rely on data located in four MySQL system tables:

- `time_zone`
- `time_zone_name`
- `time_zone_transition`
- `time_zone_transition_type`

These tables exist when you install MySQL in your deployment, but are not populated by default with data.

HDM requires this data because Due Date and First Call Resolution qualifier logic is implemented from within the database. If the database is missing time zone data, these qualifiers will not work properly.

Be sure to manually populate these system tables with time zone data. See the [MySQL website](#) and follow the instructions for MySQL Server time zone support.

You can check the system tables by executing the following query:

```
SELECT * FROM mysql.time_zone
```

If the query does not create new table rows, the tables are not populated with data.

#### 5. (New SQL Server implementation only) Enable TCP/IP.

If you are migrating to Microsoft SQL Server for your primary database, configure the following settings in the SQL Server Configuration Manager.

SETTING	VALUE
TCP/IP Protocol	Enabled in SQL Server Network Configuration > Protocols for SQL 20xx
IP Address	127.0.0.1 (if installed on the WHD server) Server IP address (if installed on a separate server)
TCP Port	1433
TCP Dynamic Ports	Blank

6. (New SQL Server implementation only) Create and configure your database.

If you are migrating to SQL Server for your primary database, configure the following settings in the SQL Server Management Studio for SQL Server to create and configure SQL Server to the HDM database instance.

SETTING	VALUE
SQL Server and Windows Authentication Mode	Enabled
Login Name	whd
SQL Server Authentication: Password	Enabled and configured
SQL Server Authentication: Enforce password policy	Disabled
SQL Server Authentication: Enforce password expiration	Disabled
SQL Server Authentication: User must change password at next login	Disabled
Database name	whd
Database owner	whd

7. Download the installer from the Customer Success Center.

8. Stop the HDM service.

- a. Navigate to the directory.
- b. Right-click `whd_stop.bat` and select Run as Administrator.

9. Launch the installer.

- a. Double-click the new HDM installer.
- b. When prompted, accept the upgrade terms.
- c. Follow the prompts on your screen to complete the upgrade.

 The upgrade procedure replaces the `tomcat_web_template.xml` file with an updated file that includes the new version settings.

- d. If prompted, select `vc_redist_64.exe` and install the Visual C++ Redistributable Packages for Visual Studio 2013 in your `<Help Desk Manager>` directory. The package components are required to run C++ applications in Visual Studio 2013 for a 64-bit environment.
- e. When the upgrade is completed, close all web browsers.

10. Update the Apache Tomcat configuration file.
  - a. Navigate to `<HelpDeskManager>\conf\` and open your new `tomcat_web_template.xml` file in a text editor.
  - b. Open your backup `tomcat_web_template.xml` file in a text editor.
  - c. Apply your personal settings from the backup file to the new file.
  - d. Save and close the new file.
  - e. Close the backup file.
11. (Optional) Increase the Java Virtual Machine (JVM) memory.

HDM requires additional max heap memory than the JVM default. After you complete the upgrade, increase the `MAXIMUM_MEMORY` value in the `whd.conf` file.

See step 13 in [Complete the installation](#) for instructions.
12. Start the HDM service.
  - a. Navigate to the `<HelpDeskManager>` directory.
  - b. Right-click `whd_start.bat` and select Run as Administrator.
13. (PostgreSQL database only) If you migrated HDM to a new server, restore the embedded PostgreSQL database on the new host server.
14. Log in to the HDM Administrator Console as an administrator.
15. Check all Tech accounts.

Ensure that all Techs can access their Tech account through their Client account or their HDM tech user name and HDM password.

The upgrade is completed.

## Check your HDM system after the upgrade

All product versions should be installed properly. Open the application and verify the versions displayed in the footer of the Web Console. Try current and new features with your system to check performance and expected functionality.

If an issue occurs you need additional help with, contact SolarWinds Customer Support. SolarWinds MSP recommends creating a screenshot of the issue and collecting any error codes you receive. Attach and add this information to your ticket. You may also want to gather additional diagnostics on the system hosting HDM.

# Customer Support

<b>SolarWinds MSP website</b>	<a href="https://www.solarwindsmsp.com">https://www.solarwindsmsp.com</a>
<b>Technical Support Self-service portal</b>	<a href="https://success.solarwindsmsp.com">https://success.solarwindsmsp.com</a>
<b>Phone support</b>	1-855-679-0817 (Toll Free/United States and Canada)
	+800 6225 3000 (International)
	(613) 592-6676, select option 2 for support