

Technical white paper



Achieve Patch Currency for Microsoft SQL Server Clustered Environments Using HP DMA

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Purpose

This paper describes how to use HP Database and Middleware Automation (HP DMA) to create a repeatable, standardized method to quickly and accurately install Microsoft SQL Server patches on SQL Server clustered installations across an enterprise to reach patch currency standards.

Tip: To patch SQL Server standalone environments, see *Achieve Patch Currency for Microsoft SQL Server Environments Using HP DMA*, available at: softwaresupport.hp.com

Benefits of HP DMA

HP DMA automates many of the daily administrative tasks required to manage the lifecycle of relational databases and J2EE application servers. These tasks are complex, often manual, typically time-consuming, and frequently error-prone. HP DMA improves the efficiency of these administrative tasks, enabling administrators to deliver change faster with higher quality, better consistency, and improved reliability.

HP DMA equips you to do the following:

- Define and enforce standards for software installation
- Define an installation process once and reuse it repeatedly
- Leverage knowledge enterprise-wide
- Avoid human error

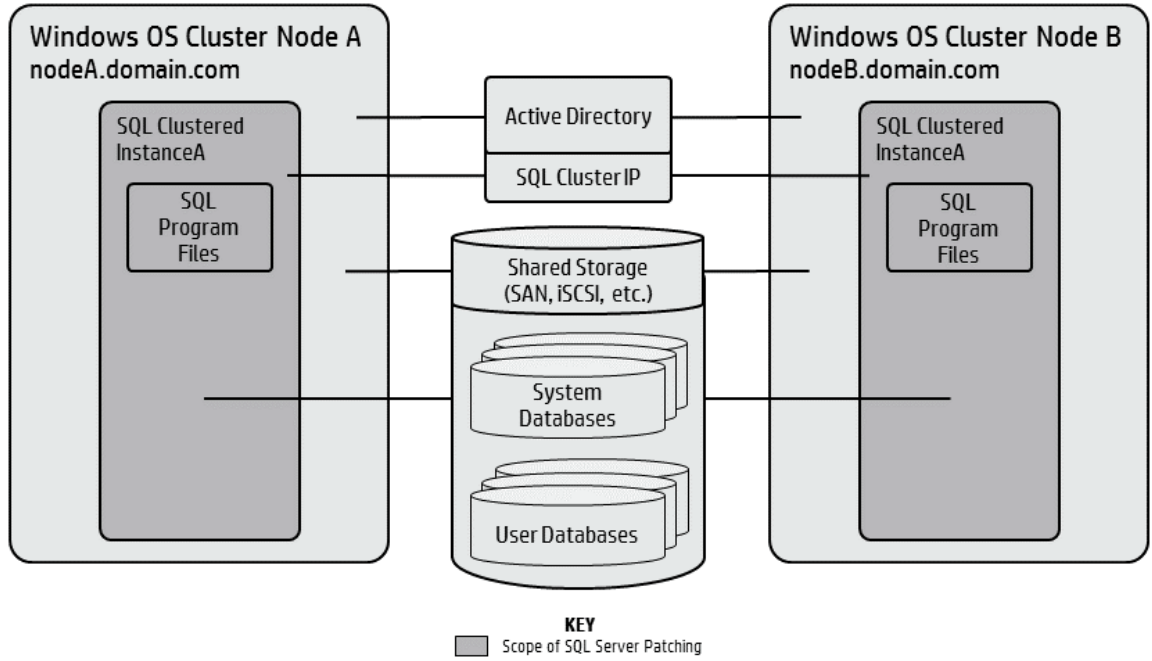
Typically, patches must be applied on all servers. Often this requires patching hundreds or even thousands of SQL Server instances. Patching can be time-consuming and error-prone. HP DMA equips you to install SQL Server patches quickly, easily, and accurately across an enterprise.

HP DMA automatically backs up your SQL Server databases before installing the SQL Server patches—an advantage if you need to revert.

HP DMA provides metadata that allows you to quickly and easily generate customized reports such as "Servers that need to be patched" or "Servers that are fully patched."

Goal

This paper describes how to install a Microsoft-supplied patch on a SQL Server clustered instance. The workflow patches the SQL Server instances and program files:



Prerequisites

Before performing the procedures in this paper, your environment must meet the following minimum requirements:

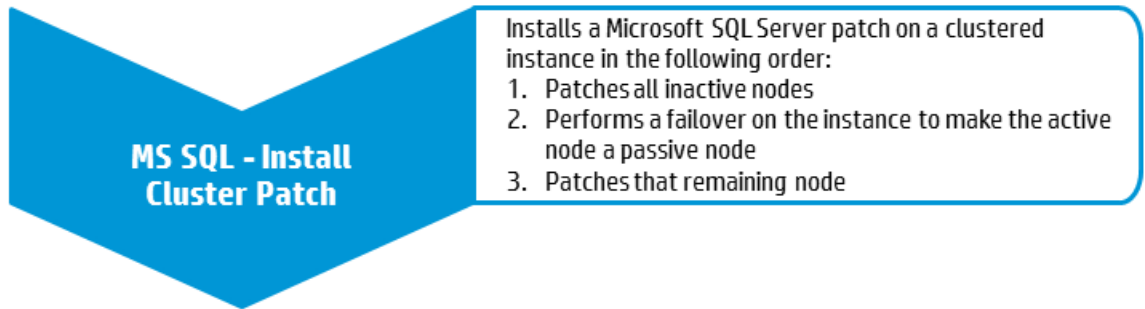
- A server running Windows 2008, 2008 R2, or 2012.
- A SQL Server clustered instance—version 2008, 2008 R2, or 2012—is provisioned and ready to be patched.
- Patch media:
 - The SQL Server patch file from Microsoft.
 - Patch installation media must be mounted locally or available for download from the software repository.¹
- Storage: A staging directory with 1 gigabyte available.
- Licenses for SQL Server and HP DMA.

¹For additional information, see [Alternative methods for specifying input files](#).

Process Overview

Installing a SQL Server patch to a Microsoft SQL Server clustered installation with HP DMA is a simple, one-step process. All required checks and steps have been implemented in a single HP DMA workflow.

Use the following HP DMA workflow to standardize the process of installing a SQL Server patch on a clustered instance:



HP DMA can install any of the following types of SQL Server patches:

- Hot Fixes
- Cumulative Updates
- Service Packs

Note: To execute the workflow, only one of the nodes in the SQL Server cluster needs to be a target for the deployment. The workflow discovers all cluster members and patches each one.

The following section provides detailed information required to run the workflow.

Note: For additional information, see [How to run an HP DMA workflow](#).

Workflow: MS SQL - Install Cluster Patch

This section provides detailed information required to run the MS SQL - Install Cluster Patch workflow.

Solution pack

This workflow requires the HP DMA Database Patching Solution Pack.

Parameters to expose

None

Input parameters

When you deploy the MS SQL - Install Cluster Patch workflow, specify input parameter values for the following steps.

Note: Bold text in the following tables indicates that you must specify a value for the parameter.

Step: MS SQL - Parameters - Install Patch

Parameter	Description	Example Value
Download From Software Directory	<p>Required: The name of the SQL Server patch file obtained from Microsoft.¹</p> <p>Note: This must be an EXE file. If you obtain a ZIP file from Microsoft, unzip it to retrieve the EXE file.</p>	SQL12_SP1.exe
Download Target Destination	<p>Required: The local directory where the SQL Server patch file is stored:²</p> <ul style="list-style-type: none"> - If patch file is in the software repository: Location where Download From Software Directory will be downloaded - If patch file is on the target: Location where the Microsoft SQL Server patch file already exists <p>Upon a successful workflow completion, all downloaded files are cleaned up.</p>	C:\temp
Web Service Password	Required: Password for the HP DMA Discovery web service API.	●●●

¹If the file is not found on the target server(s), it will be downloaded from the software repository. For additional information, see [Alternative methods for specifying input files](#).

²For additional information, see [Alternative methods for specifying input files](#).

Note: The step Run Subflow - MS SQL - Install Patch runs first to patch all passive nodes.

Step: Run Subflow - MS SQL - Install Patch

Parameter	Description	Example Value
Server Parallel Execution	Optional: Flag to determine whether the workflow is to execute in parallel. Set to False if you would like the workflow to execute serially. Default is True.	True

Note: The step Run Subflow - MS SQL - Install Patch runs again to patch the active node.

Step: Run Subflow - MS SQL - Install Patch

Parameter	Description	Example Value
Server Parallel Execution	Optional: Flag to determine whether the workflow is to execute in parallel. Set to False if you would like the workflow to execute serially. Default is True.	True

Appendix A: Alternative methods for specifying input files

HP DMA provides alternative methods for specifying input files, either downloaded from the software repository or stored directly on the target server(s).

Method 1: The input files are in the software repository

1. Obtain the pertinent input files.

For example, download the SQL Server patch file from Microsoft; if the file is a ZIP file, extract the necessary EXE file.

2. Import the files into the software repository. For additional information, see [How to import a file into the software repository](#).
3. When you create the workflow deployment, specify the filenames and/or directory names for the pertinent input parameters—the files should not exist on the target server(s).
4. When the deployment is executed, HP DMA determines that the input files do not exist on the target server(s) in the specified (or default) download location and then downloads them from the software repository. If the input files need to be processed (for example, unzipped), the new files are placed in the specified (or default) extract location.
5. All downloaded, extracted, and staged files are removed upon successful completion of the workflow.

Method 2: The input files are stored on each target server

1. Obtain the pertinent input files.

For example, download the SQL Server patch file from Microsoft; if the file is a ZIP file, extract the necessary EXE file.

2. Copy the files to each target server into the specified (or default) download location.
3. When you create the workflow deployment, specify the filenames and/or directory names for the pertinent input parameters.
4. When the deployment is executed, HP DMA determines that the input files exist on the target server(s) in the specified (or default) download location. If the input file needs to be processed (for example, unzipped), the new files are placed in the specified (or default) extract location.
5. All extracted and staged files (and any downloaded files) are removed upon successful completion of the workflow.

Appendix B: How to import a file into the software repository

Many HP DMA workflows are capable of downloading files from the software repository on the HP DMA server to the target server(s) where the workflow is running. The following procedure shows how to import a file into the software repository so that it can be downloaded and deployed by a workflow.

HP DMA uses the HP Server Automation (SA) Software Library as its software repository.

Tip: Be sure to use unique file names for all files that you import into the software repository.

To import a file into the SA Software Library:

1. Launch the SA Client from the Windows Start Menu.

By default, the SA Client is located in Start → All Programs → HP Software → HP Server Automation Client.

If the SA Client is not installed locally, follow the instructions under “Download and Install the HP SA Client Launcher” in the *HP Server Automation Single-Host Installation Guide* available at: softwaresupport.hp.com

2. In the navigation pane in the SA Client, select Library → By Folder. Select (or create) the folder where you want to store the file. Click **Import Software**.
3. In the Import Software dialog, browse to the file (or files) to import, select the character encoding, and then click **Open**. For the Type, select **Unknown**. Select (or browse to) the folder where you want to store the files. For the Platform, select all the operating systems. Click **Import**.
4. Click **Close** after the import completes.

Appendix C: How to run an HP DMA workflow


The following steps outline the general instructions to run an HP DMA workflow:

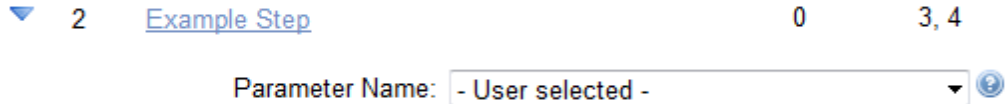
1. Import the specified HP DMA solution pack (if it is not already available).
2. Create a deployable copy of the workflow: Specify a name, add roles, optionally expose parameters (for additional information, see [How to expose hidden parameters](#)), and then **Save**.
3. Create a deployment: Specify a name, schedule, targets, and input parameters, and then **Save**.
4. Execute the deployment to run the workflow.
5. View the results to verify that the workflow ran correctly (refer to the online workflow documentation).

Note: For more information about running HP DMA workflows, see the *HP DMA Quick Start Tutorial* available at: softwaresupport.hp.com

Appendix D: How to expose hidden parameters

If you need to expose any hidden parameters, perform the following additional steps when you create a deployable copy of the workflow:

1. Click the Workflow tab.
2. Click the blue arrow  next to the pertinent step to expand the list of input parameters.
3. For the parameter that you want to expose, select **- User selected -** from the drop-down list. For example:



4. Repeat steps 2 and 3 for all the parameters that you would like to expose.
5. Save the copy of the workflow.

To learn more about HP Database and Middleware Automation visit
hp.com/go/dma

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