NetApp

Managing high availability

OnCommand Workflow Automation

NetApp
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Table of Contents

Managing high availability

You can configure a high-availability setup to provide constant support for network operations. If one of the components fail, the mirrored component in the setup takes over the operation and provides uninterrupted network resources. You can also back up the WFA database and supported configurations so that you can recover the data in case of a disaster.

Set up Workflow Automation in MSCS for high availability

You can install and configure Workflow Automation (WFA) in a Microsoft Cluster Service (MSCS) environment to set up high availability and provide failover. Before you install WFA, you must verify that all the required components are configured correctly.

A high-availability setup provides constant support for application operations. If one of the components fails, the mirrored component in the setup takes over the operation and provides uninterrupted network resources.

ⓘ | MSCS is the only clustering solution that is supported by WFA in Windows.

Configure MSCS to install Workflow Automation

Before you install Workflow Automation (WFA) in Microsoft Cluster Server (MSCS), you must configure your MSCS environment.

- MSCS must be installed from the server manager.
- Optional: SnapDrive for Windows must be installed.

  The minimum supported version is Windows 2012.

- The same version of WFA must be installed using the same path on both the cluster nodes.
- Both the cluster nodes must be added to the same domain.

You must complete this task by using Cluster Manager in the MSCS interface.

Steps

1. Log in to Cluster Manager as a domain admin.
2. Verify that the LUNs are accessible to both the nodes using one of the following options:
   - Managing the LUNs natively.
   - By using SnapDrive for Windows:
     i. Install and configure SnapDrive for Windows on both the nodes.
     ii. Create a LUN using SnapDrive for Windows and configure the LUN for both the nodes.
3. From Failover Cluster Manager, add the disk to the cluster.

Install OnCommand Workflow Automation on Windows

You can install OnCommand Workflow Automation (WFA) to create and customize

storage workflows for automating the storage tasks that are performed in your environment.

- You must have reviewed the installation prerequisites.

  [Prerequisites for installing Workflow Automation](#)

- If you are installing WFA on a system where WFA was previously installed and then uninstalled, you must ensure that there are no WFA services on that system.

- You must have downloaded the WFA installer from the NetApp Support Site.

- If you are installing WFA on a virtual machine (VM), the name of the VM must not include the underscore (_) character.

- ActiveState ActivePerl is installed before you install WFA.

  This installation does not affect any other instances of ActivePerl that you have installed on your WFA server.

- Before you reinstall WFA 4.2 or later, you must delete MySQL data directory if you have uninstalled MySQL.

Steps

1. Log in to Windows using an account with administrative permissions.

2. Open Windows Explorer, and then navigate to the directory where the installation file is located.

3. Install WFA:

   - Interactive installation

     i. Right-click and run the WFA installer executable (.exe) file as an admin user.

     ii. Click **Next**.

     iii. Enter the credentials for the default admin user, and then click **Next**.

        The default admin password must satisfy the following criteria:

        - Minimum of eight characters

        - One uppercase character

        - One lowercase character

        - One numeral

        - One special character

        - The following special characters are not supported in a password and cause installation failure:

          `" ; < > , = & ^ |

          (i) You must note the credentials of the admin user.

     iv. Enter a user name and password for the WFA service logon. For a domain user provide a user name in the format DOMAIN\USER. For a local system user the format is just a user name. The default user name is "wfa".

        WFA installer creates a local user if one does not exist. If a local user exists and the password entered is different than the existing password, WFA updates the password.

> ⓘ Ensure the password conforms to the password policy configured for local users on the system. If the password does not conform to the password policy, the install fails.

    v. Select the ports for the WFA configuration, and then click **Next**.

    vi. Enter a site name and your company name, and then click **Next**.

       The site name can include the location of the WFA installation, for example, Pittsburgh, PA.

    vii. If you want to change the default installation location, select the location where you want to install WFA, and then click **Next**.

    viii. If you want to change the default installation location for third party products, select the location where you want to install third party products, and then click **Next**.

    ix. If you do not want to change the default location of the WFA database, click **Next**.

    x. Click **Install** to continue the installation.

    xi. Click **Finish** to complete the installation.

    xii. Verify that WFA was installed successfully by choosing one of the following actions:

       ▪ Access WFA through a web browser.

       ▪ Use the Windows Services console to verify that the NetApp WFA Server service and the NetApp WFA Database service are running.

◦ Silent installation (from the command prompt):

```
WFA-version_number-build_number.exe /s
/v"WFA_ADMIN_USERNAME=wfa_username WFA_ADMIN_PASSWORD=password
WFA_ADMIN_CONFIRM_PASSWORD=confirm admin password /
WFA_MYSQL_PASS=password CONFIRM_WFA_MYSQL_PASS=confirm MySQL password
WFA_INSTALL_SITE=site WFA_INSTALL_ORGANIZATION=organization_name
WFA_HTTP_PORT=port WFA_HTTPS_PORT=port INSTALLDIR=install_directory
JDKINSTALLDIR=jdk_directory PerlDir=perl_directory
MySqlInstallDir=mysql_directory WFA_SERVICE_LOGON_USERNAME=wfa
service logon username WFA_SERVICE_LOGON_PASSWORD=wfa service logon
user password MYSQL_DATA_DIR= mysql data directory /qr /l*v
C:\install.log"
```

Example

WFA-x64-V5.1.0.0.1-B5355278.exe /s /v"WFA_ADMIN_USERNAME=admin
WFA_ADMIN_PASSWORD=Company*123 WFA_ADMIN_CONFIRM_PASSWORD=Company*123
WFA_MYSQL_PASS=MySQL*123 CONFIRM_WFA_MYSQL_PASS=MySQL*123
WFA_INSTALL_SITE=nb WFA_INSTALL_SITE=nb WFA_INSTALL_ORGANIZATION=netapp
WFA_HTTP_PORT=80 WFA_HTTPS_PORT=443 INSTALLDIR=\"C:\Program Files\NetApp\WFA\"
JDKINSTALLDIR=\"C:\Program Files\NetApp\" PerlDir=\"C:\Perl64\" MySqlInstallDir=\"C:\Program
Files\MySQL\"WFA_SERVICE_LOGON_USERNAME=wfa
WFA_SERVICE_LOGON_PASSWORD=Wfa*1234\NetApp\WFA\" MYSQL_DATA_DIR=\"C:\Program
Files\NetApp\WFA\Database\" /qr /l*v C:\install.log"

> ⓘ The /qn option is not supported by WFA.

The command parameters are as follows:

Parameter	Description
WFA_ADMIN_USERNAME	Admin user name Optional parameter. If you do not specify a value, the value defaults to admin.
WFA_ADMIN_PASSWORD	Admin user password Mandatory parameter. The default admin password must satisfy the following criteria: • Minimum of eight characters • One uppercase character • One lowercase character • One numeral • One special character • The following characters are not allowed and cause password input to fail: `" ; < > , = & ^ |
WFA_ADMIN_CONFIRM_PASSWORD	Admin user password Mandatory parameter
WFA_MYSQL_PASS	MySQL user password Mandatory parameter
CONFIRM_WFA_MYSQL_PASS	MySQL user password Mandatory parameter
WFA_INSTALL_SITE	Organizational unit where WFA is being installed Mandatory parameter
WFA_INSTALL_ORGANIZATION	Organization or company name where WFA is being installed Mandatory parameter
WFA_HTTP_PORT	HTTP port Optional parameter. If you do not specify a value, the value defaults to 80.
WFA_HTTPS_PORT	HTTPS port Optional parameter. If you do not specify a value, the value defaults to 443.
INSTALLDIR	Installation directory path Optional parameter. If you do not specify a value, the path defaults to "C:\Program Files\NetApp\WFA\".
JDKINSTALLDIR	JDK installation directory path Optional parameter. If you do not specify a value, the path defaults to "C:\Program Files\NetApp\".

Parameter	Description
PerlDir	Perl installation directory path Optional parameter. If you do not specify a value, the path defaults to "C:\Perl64\".
MySqlInstallDir	MySQL installation directory path Optional parameter. If you do not specify a value, the path defaults to "C:\Program Files\MySQL\".
WFA_SERVICE_LOGON_USERNAME	User name for WFA service logon Optional parameter. If you do not specify a value, the default user name is "wfa". For a domain user provide a user name in the format DOMAIN\USER. For a local system user the format is just a user name. WFA installer creates a local user if one does not exist. If a local user exists and the password entered is different than the existing password, WFA updates the password. Ensure the password conforms to the password policy configured for local users on the system. If the password does not conform to the password policy, the install fails.
WFA_SERVICE_LOGON_PASSWORD	Password for WFA service logon Mandatory parameter
MYSQL_DATA_DIR	Directory for MYSQL data Optional parameter. If you do not specify a value, the path defaults to "C:\ProgramData\MySQL\MySQLServerData" Available for fresh install only.

Related information

[NetApp Support](#)

Configure Workflow Automation with MSCS

After you install Workflow Automation (WFA) in Microsoft Cluster Server (MSCS), you must configure WFA for high availability in MSCS using configuration scripts.

You must have created a backup of WFA.

> (i) Before you start your configuration make sure that the WFA encryption key is set consistently on both MSCS cluster nodes. If it is not set on both nodes, then when failover occurs, the credentials cannot be decrypted on the second node causing workflow failures.

Steps

1. Log in to the first node of the MSCS cluster, and perform the following steps:

For…	Do this…

Windows 2012, Windows 2016, Windows 2019	a. From the Failover Cluster Manager, right-click **Service Roles**.
	
	b. Select **Create Empty Service Role**, and then rename the role to "WFA".
	
	c. Add the IP address resource to the newly created "WFA" role:
	
	    i. From the Failover Cluster Manager, right-click the newly created "WFA" role.
	
	    ii. Select **Resource** > **More Resources** > **IP Address**.
	
	    iii. Configure the cluster IP address.

2. Edit the `mscs_data_parameters.xml` file and set the relative path to the MySQL data directory:

```
<dir>
    <description>Data directory</description>
    <srcpath>..\..\..\..\..\ProgramData\MySQL\MySQLServerData</srcpath>
    <destpath>wfa</destpath>
</dir>
```

3. Edit the `mscs_resource_properties.xml` file and make the following updates:

   a. Perform a find/replace for the `NA_WFA_DB` service name and update it to `MYSQL57`.

   b. Set the `vip_res` `<prettyname>` to the virtual IP address name:

```
<resource>
    <type>essential</type>
    <id>vip_res</id>
    <prettyname>WFA IP address</prettyname>
</resource>
```

   c. Set the `data_res` `<prettyname>` to the disk name assigned to the share disk resource:

```
<resource>
    <type>essential</type>
    <id>datadisk_res</id>
    <prettyname>Cluster Disk 2</prettyname>
</resource>
```

   d. Copy the XML files from the first node to the second node:

```
copy "\\node1\D$\Program Files\NetApp\WFA\bin\ha\*xml" "D:\Program
Files\NetApp\WFA\bin\ha"
```

   e. Run the command to join the second node to the cluster:

```
D:\Program Files\NetApp\WFA\bin\ha>perl ha_setup.pl --join -t mscs -f E:\
```

4. At the command prompt, run the ha_setup.pl script to move the WFA data to the shared location and to configure WFA with MSCS for failover. The script is available at WFA_install_location\WFA\bin\ha\.

```
perl ha_setup.pl --first [-t type_of_cluster_vcs] [-g cluster_group_name] [-i
IP_address_name] [-n cluster_name] [-k shared_disk_resource_name] [-f
shared_drive_path]
```

The ha_setup.pl script expects an input using the IP Address resource for the MSCS cluster. When installing on MSCS 2016, the resource needs to be added by name, not IP address, `WFA IP address`. For example:

```
perl ha_setup.pl --first -t mscs -g WFA -i "WFA IP address" -n wfa_cluster -k
"Cluster Disk 2" -f E:\
```

5. Verify that the MSCS resources are created, by checking for the successfully configured message in the output.

```
 Successfully configured MSCS cluster resources on this node
```

6. Stop the WFA services from the Failover Cluster Manager:

For…	Do this…
Windows 2012, Windows 2016, Windows 2019	a. Select **Service Roles**, and then select the newly created "WFA" role. b. In the Resource pane, right-click **MYSQL57**, and then select **Take Offline**. c. In the Resource pane, right-click **NA_WFA_SRV**, and then select **Take Offline**.

The WFA database service and the WFA server service must be taken offline. The WFA services must not be stopped from the Windows services.

1. Manually move the WFA resources to the secondary node.

2. Verify that the shared disk is accessible from the second node.

3. At the command prompt, run the ha_setup.pl script on the secondary node of the cluster to configure WFA for using the data from the shared location:

   ```
   perl ha_setup.pl --join [-t type_of_cluster_mscs] [-f shared_drive_path]
   ```

   The ha_setup.pl script is available at WFA_install_location\WFA\bin\ha\.

   ```
   perl ha_setup.pl --join -t mscs -f E:\
   ```

4. From the Failover Cluster Manager, bring the WFA resources online:

For…	Do this…
Windows 2012, Windows 2016, Windows 2019	a. Right-click the newly created "WFA" role, and then select **Start Role**. The role must be in the Running status, and the individual resources must be in the Online state.

5. Manually switch to the second node of the MSCS cluster.

6. Verify that the WFA services start properly on the second node of the cluster.

Configure earlier versions of OnCommand Workflow Automation for high availability

You can configure OnCommand Workflow Automation (WFA) versions earlier than 3.1 for high availability.

Steps

1. Upgrade the existing version of WFA to the latest available version of WFA.

   [Upgrade WFA](#)

   This upgraded version of WFA is the primary node of the cluster.

2. Create a backup of the WFA database.

   [Backing up the WFA database](#)

   If any of the parameters were changed manually, you must create a backup of the WFA database, uninstall the existing WFA installation, install the latest available version of WFA, restore the backup, and then proceed with the Microsoft Cluster Service (MSCS) configuration.

3. Configure MSCS to install WFA on the primary node.

   [Configure MSCS to install WFA](#)

4. Install the latest available version of WFA on the secondary node.

   [Install WFA](#)

5. Configure WFA in MSCS.

Configure WFA in MSCS

The WFA server is configured for high availability.

Uninstall Workflow Automation in an MSCS environment

You can uninstall Workflow Automation (WFA) from a cluster by deleting all the WFA services from the cluster nodes.

This task applies to Windows Server 2012.

Steps

1. Take the services offline by using Failover Cluster Manager:

    a. Right-click the role.

    b. Select **Stop Role**.

2. Uninstall WFA on the first node, and then uninstall WFA on the second node.

    Uninstall OnCommand Workflow Automation

3. Delete the cluster resources from Failover Cluster Manager:

    a. Right-click the role.

    b. Select **Remove**.

4. Manually delete the data in the shared location.