Backup and Recovery

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Therefore™

PEOPLE PROCESS INFORMATION

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Table of Contents

1. Introduction 4

2. Therefore™ Database 5

2.1 How to restore a Therefore™ database 5

2.2 Therefore™ Document Recovery Utility 6

3. Therefore™ Files 8

3.1 What happens if my Primary Storage fails? 9

4. Therefore™ Server 11

4.1 How to restore a Therefore™ Server 11

5. Testing 12

5.1 Installation 12

5.2 Client communication 12

5.3 Document Storage 12

6. Failover Clusters 13

6.1 Windows Server 2008 R2 14

6.1.1 Therefore™ Server installation - Node 1 14

6.1.2 Therefore™ Server installation - Node 2 17

6.1.3 Configuring the Therefore™ system for clustering 18

6.1.4 Adding the Therefore™ Server Application to the cluster 20

6.1.5 Adding Therefore™ services to the application 25

6.1.6 Configuring client connections 30

6.2 Windows Server 2012 R2 31

6.2.1 Therefore™ Server installation - Node 1 31

6.2.2 Therefore™ Server installation - Node 2 34

6.2.3 Configuring the Therefore™ system for clustering 35

6.2.4 Adding the Therefore™ Server Application to the cluster 37

6.2.5 Adding Therefore™ services to the application 42

6.3 Windows Server 2016 47

1. Introduction

An essential element to an information management system is of course backup of their information. A customer must have the assurance that their information is safe. To ensure this, a carefully thought-out backup policy needs to be in place.

A Therefore™ document consists of meta data (internal and external index data) and the actual files that make up the document (e.g. a spreadsheet, image or video). The meta data is stored in the database and the files are stored in the filing system (e.g. a hard drive). So the critical elements that need to be secured are the Therefore™ database and the files stored in Therefore™.

In order to access these documents an installation of Therefore™ Server is required to connect to the database and retrieve the documents. The purpose of this document is to offer suggestions on the best way to secure these critical elements, and how to restore them in the case of disaster.

Finally, this document includes instructions for setting up a Therefore™ system in a failover cluster. Clustering offers customers protection in case a server fails or goes offline. A cluster consists of 2 or more nodes (servers) and protects against hardware failure in the following way: When one node fails, another one jumps in automatically to provide those services in its place with no interruption for users. This process is called failover. Each failover server requires an additional Therefore™ license. Failover clusters are useful for environments where high availability of the Therefore™ system is critical. More information about clustering can also be found on Microsoft's website.

2. Therefore™ Database

When a document is saved to Therefore™ the meta data is stored to the Therefore™ database. This includes internal data like the date and who saved it as well as the category index data that was configured in the Therefore™ Solution Designer.

The database can be located on the same server as where Therefore™ Server is installed, or it can be on a separate server. There is no recommendation here; the IT administrator needs to decide what is best for his or her situation.

What is important, however, is that the database is backed-up. Therefore™ does not use an internal mechanism for backing up the database. Database backup should be performed as per the database manufacturer's instructions and the regularity should be decided on depending on the amount and importance of the data being stored.

2.1 How to restore a Therefore™ database

Simply restore the database from your backup using the manufacturer's guidelines.

What can be done if there is no database backup?
In the extreme case where no backup of the database exists it could be possible to restore or partially restore the database using the Therefore™ documents and the document information contained in them. This is done using the Therefore™ Document Recovery Utility.

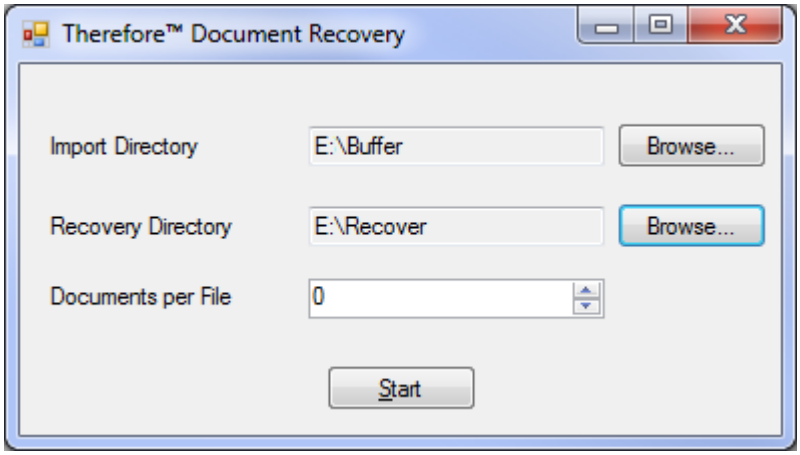
2.2 Therefore™ Document Recovery Utility

The Therefore™ Document Recovery Utility provides the possibility to recover or partially recover certain types of documents after the loss of a Therefore™ database, and in the event that no database backup is available. Please read the instructions carefully before using this utility.
Therefore™ Documents are read from a directory (e.g. Buffer or Primary storage) and are extracted to a recovery directory. Additionally, the utility creates an xml file and folder for each Therefore™ category. These files are then used to import the documents into the new Therefore™ system via the Therefore™ Document Loader.

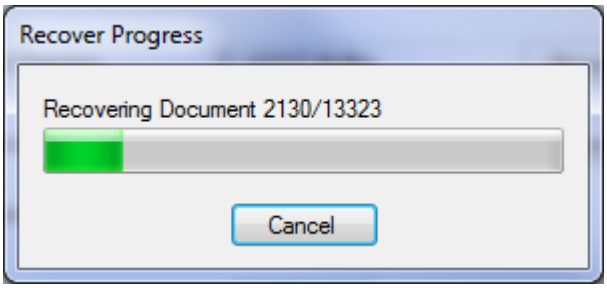
- This utility should not be seen as an alternative to backing up your Therefore™ system.
- This utility cannot recover all types of documents/information and should only be used in the event of a hard drive crash with no database backup.
- Content files and Therefore™ categories belonging to cases are not supported.

The recommended procedure is:

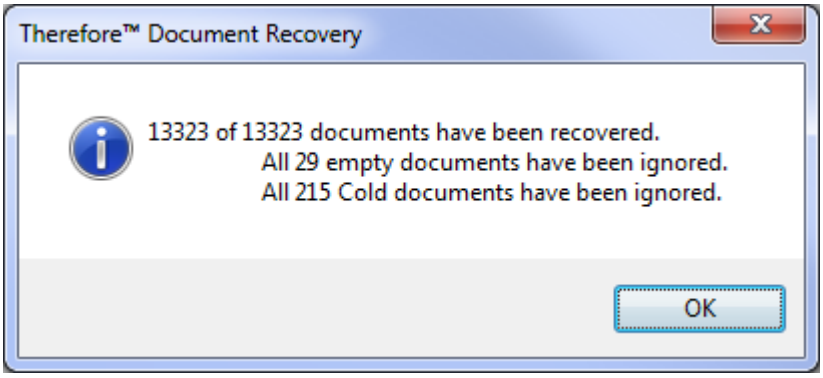
1. Start the Therefore™ Document Recovery Utility from a PC which has access to the directory containing the Therefore™ documents.
2. Click Browse to choose the Import Directory (note: subdirectories are included). Then choose the Recovery Directory (an empty folder where the documents will be recovered to). Click Start to begin the process.



3. The two-step process will start and progress will be shown.



4. Once done, a recovery report will be shown. Clicking OK closes the utility.



- If any documents cannot be recovered, a "log.txt" file is created, in the Recovery Directory, with details of all problems.
- All deleted documents will be recovered and restored.
- Manual document links cannot be recovered.
- The documents in the Import directory are not affected in any way.

5. In your new Therefore™ system, recreate the categories for all documents.

6. Create a Therefore™ Document Loader profile for each category.

Therefore™ Content Connector files

- Do not import these files (by default the xml file in English systems is called "Spoolfiles.xml"); these can be restored by processing them with the Therefore™ Content Connector.

- Therefore™ Content Connector documents do not exist on the buffer as ".thex" files; hence, they are not included in the recovery process. Instead, they are a part of a file and can be recovered by processing with the Therefore™ Content Connector. However, Therefore™ Content Connector documents that have been changed (e.g. annotations, changing index data) are stored as ".thex" files on the buffer. But, the Document Recovery Utility will not process them, because the Therefore™ Document Loader cannot import them correctly. So any such changes will be lost and need to be redone after reprocessing the documents.

7. Use the Therefore™ Document Loader to import all the documents into Therefore™.

Document versions are not recognized by the Document Recovery Utility. However, there is a workaround if a unique field exists in the category. This field can then be used in Therefore™ Document Loader to create new versions (see Document Loader manual). Note: if the unique field value has changed from one version to another, or the document was moved to another category, Document Loader is not able to recognize that it is a new version of the document. In addition this workaround does not work in an Enterprise system (multiple Therefore™ Servers) due to issues with unique numbering.

3. Therefore™ Files

When a document is first saved to Therefore™ the actual files are stored in the Buffer folder. The location of this folder can be chosen by the administrator. We then recommend the following to ensure that these files are secure.

Primary Storage

We recommend that a Storage policy be created in Therefore™ that continually monitors this folder and moves the files to a Primary Storage location.

Backup Storage

In addition we recommend setting up a backup storage policy that copies the documents to a Backup Storage location that is located in a different place to the Primary Storage. The migration to Backup Storage can also be continuous, but since files are not deleted from the Buffer folder until the Backup migration is complete, we recommend doing this overnight so as to not affect system performance unnecessarily.

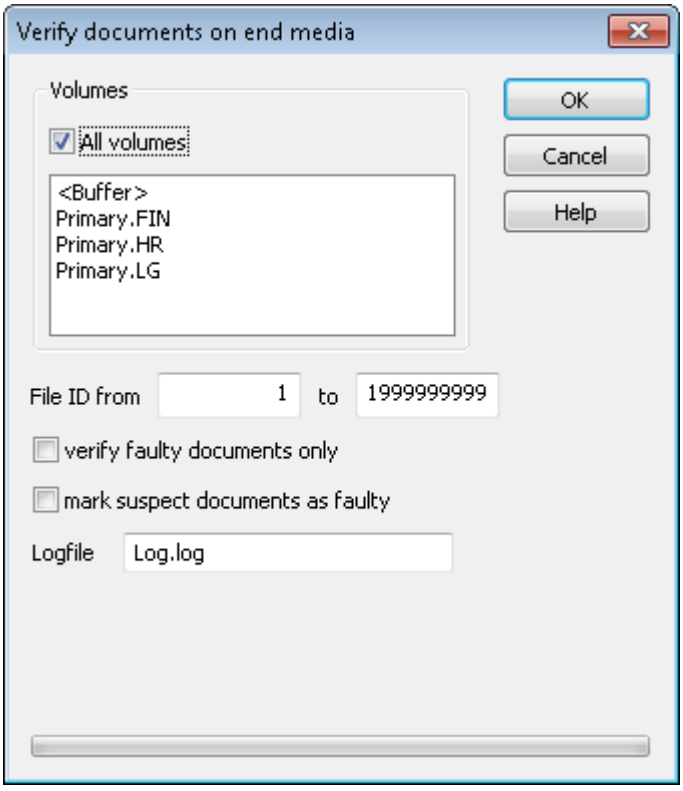
Recommended backup policy for files in Therefore™

There are of course other ways of backing up the files, but we recommend the scenario above. Therefore™ verification tools enable administrators to ensure that all documents are accessible on primary and backup media. In the case of the primary storage location being corrupted or destroyed (e.g. disk crash), it can be repaired or replaced using the backup location. In addition, Therefore™ supports NetApp® SnapLock® which allows WORM storage.

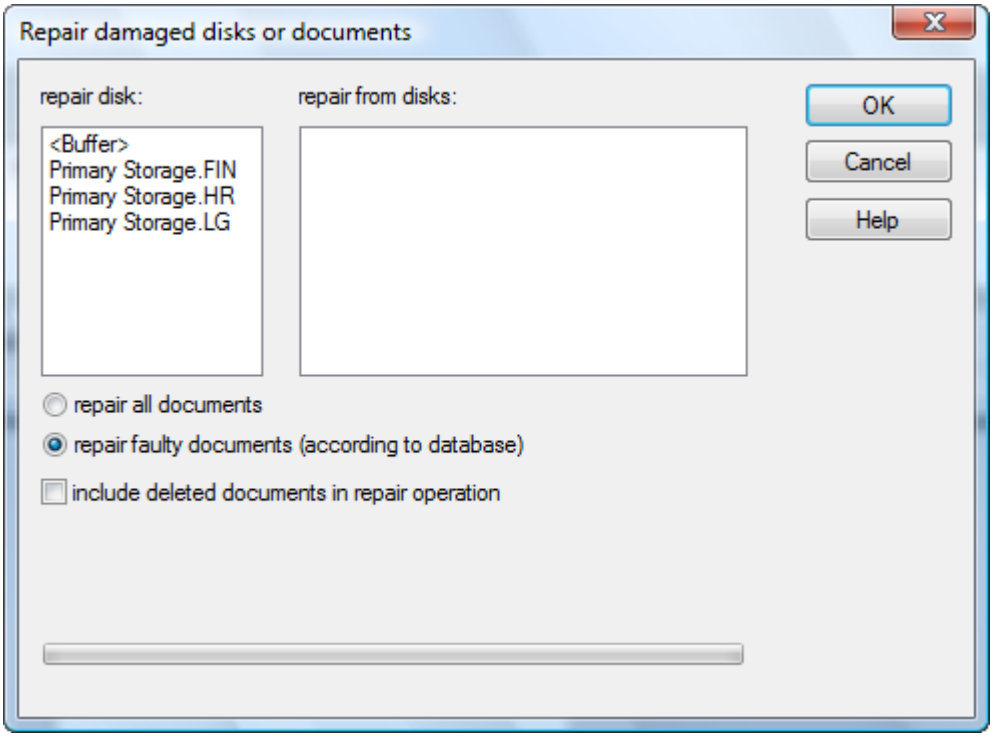
3.1 What happens if my Primary Storage fails?

The Therefore™ Console allows the automatic recovery of primary storage from a backup storage and similarly backup storage can be restored from the primary storage. This is done in the Therefore™ Console. The first step is to check the damaged media and verify which documents are faulty.

1. Click Verify and then Documents... The following dialog will be displayed. Select the media to check and check the mark suspect documents as faulty. Click OK to start. If any faulty documents are found, these will be displayed and also marked as such in the database, otherwise a dialog will appear stating that no faulty documents were found. In addition a log file containing the faulty documents will be created and saved to the C:\Program Files\Therefore folder.



2. The second step is to repair the faulty documents from a complete media. Click Verify and then Repair. Select the media to be repaired. Once selected a list of media where a copy of the documents exists will be displayed. Select the media to repair from. Next select the option repair faulty documents (according to database). Click OK to start the repair sequence. All documents that should be repaired will be copied from the good media to the buffer. Later on, during regular migration they will be moved from the buffer to a new end media.



3. Once migration is complete, perform a new verification to ensure that all documents are now restored.

In the case where only a primary backup is available together with an external backup, then a damaged primary must be restored from an external backup. Where the possibility exists to just restore individual documents, then only the faulty documents as detailed in the log file should be replaced.

4. Therefore™ Server

To restore the Therefore™ Server installation a backup of the installation is not essential since reinstalling Therefore™ and referencing the existing Therefore™ database will suffice for a full recovery.

- If a backup of the installation is still wanted the C:\Program Files\Therefore and all its contents should be backed up. In addition the Windows® registry should be backed up and in particular HKLM\Software\Therefore.
- If any manual changes were made to the registry then we recommend backing this up. In addition if any Therefore™ Document Loader profiles were created then these are saved to the registry (if they are created on a client then the client registry needs to be backed up.

4.1 How to restore a Therefore™ Server

A Therefore™ Server can be stored as follows:

1. Make sure that the connection to a Therefore™ database is working.
2. Re-install the Therefore™ Server software. The license can be obtained from the existing database which also contains the previous installation path settings and will restore these automatically. In addition the registry settings will be automatically created. If the registry was customized in the original installation, then this will need to be done again, as these settings are not contained in the database. The configuration data is essentially stored in the database and so no additional recover of configuration data is required.

5. Testing

5.1 Installation

After restoring the installation the Therefore™ services and applications should be tested. It is recommended that the Event Log entries be analyzed after starting the Therefore™ services. Once the services have been successfully started test the Therefore™ appications in particular searching for and displaying documents.

5.2 Client communication

The communication between server and clients should be tested to ensure that the DCOM or HTTP/HTTPS communication is working correctly.

5.3 Document Storage

1. Use the Therefore™ Console to verify all documents in the Buffer as well as on the storage devices.
2. Save some sample documents to Therefore™ and then migrate them to the Primary and Backup storage. After migration use the Therefore™ Console to verify all stored documents.

6. Failover Clusters

The following tutorials explain how to set up a Therefore™ Server on a failover cluster with two nodes. There are tutorials for both Windows Server 2008 R2 and Windows Server 2012 R2. Refer to the Installation Guide for a list of all supported server operating systems. The Therefore™ Server installation process (on a failover cluster with two nodes) in Windows Server 2016 is the same as in Windows Server 2012 R2.

Failover clusters are useful for environments where high availability of the Therefore™ system is critical.

Requirements:

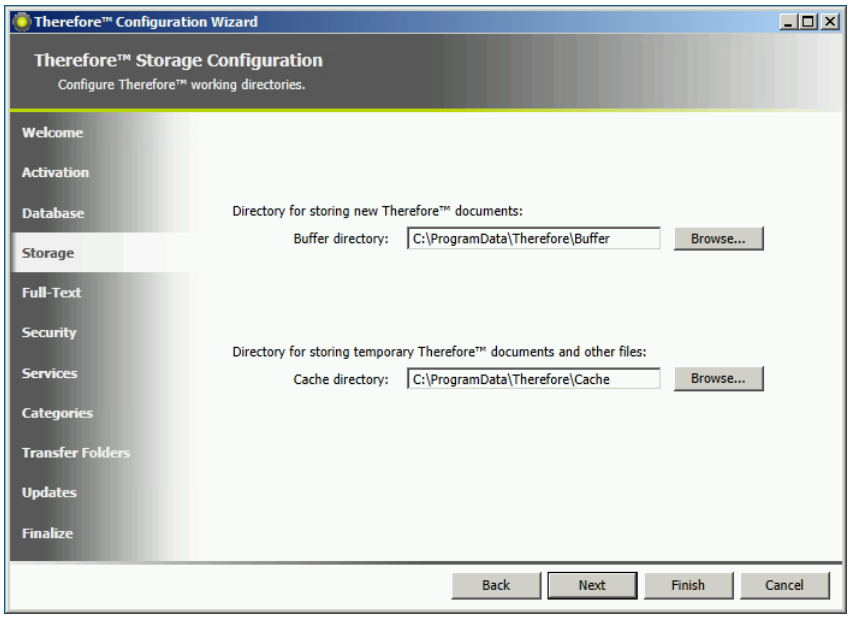
- A Windows cluster with at least two nodes
- A Therefore™ license (without a system PIN check) with at least two server licenses
- The following folders must be placed either on the quorum disk or on a network share:
  - Buffer
  - Cache
  - Fulltext
  - Preview (default location C:\ProgramData\Therefore\Cache\Preview)
  - (Optional) WebCache (default location: C:\Program Files\Therefore\WebCache)

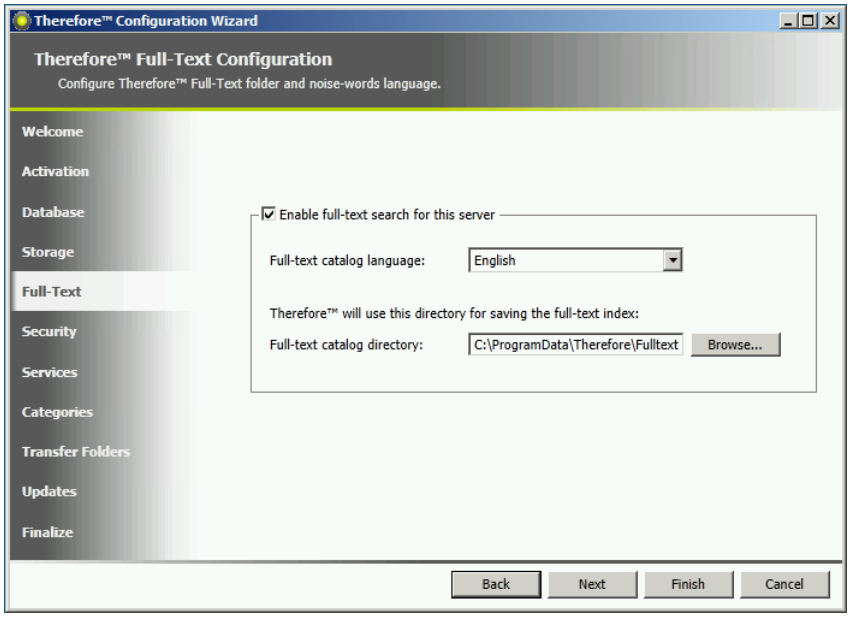
6.1 Windows Server 2008 R2

6.1.1 Therefore™ Server installation - Node 1

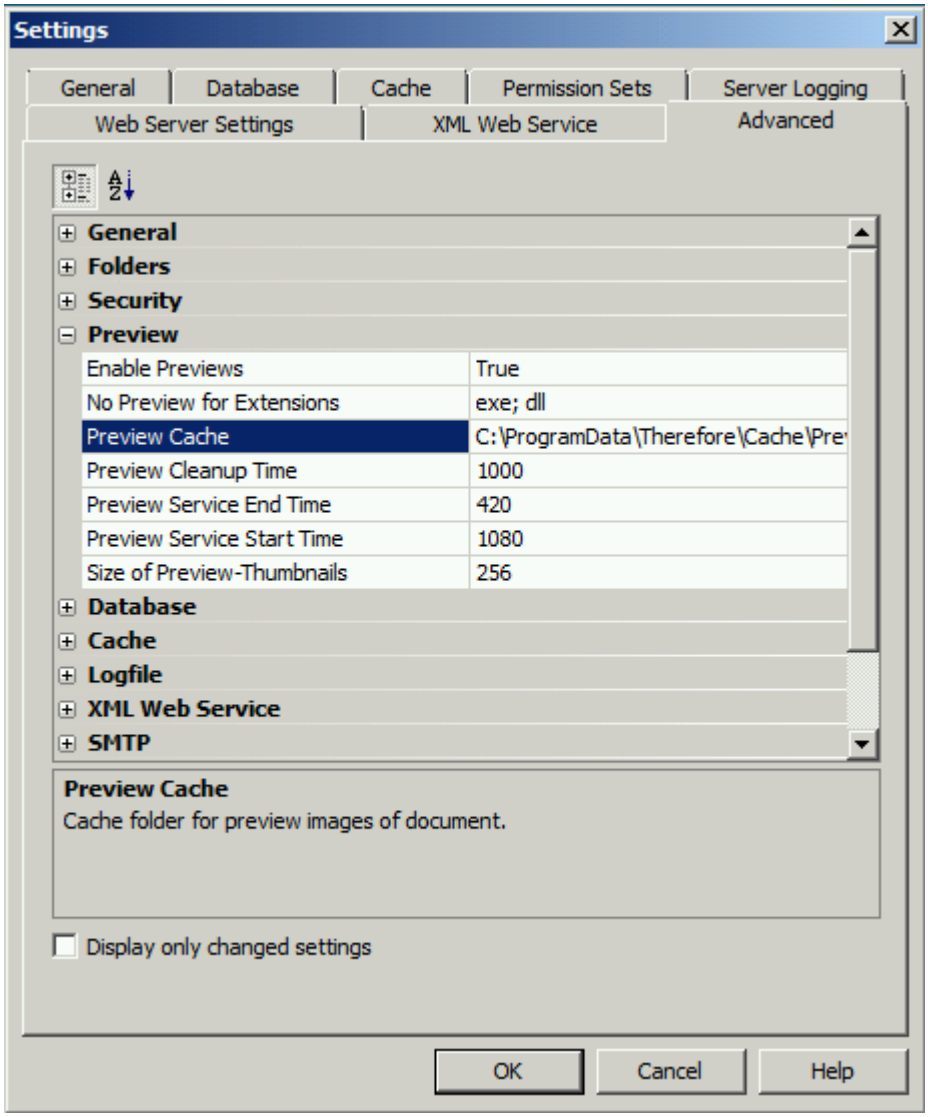
1. Run the Therefore™ Setup as usual. For more information, see the Installation Guide.

2. In the folder configuration dialogs of the Therefore™ Configuration Wizard, it is recommended to put the Therefore™ folders on the quorum disk or a network share.

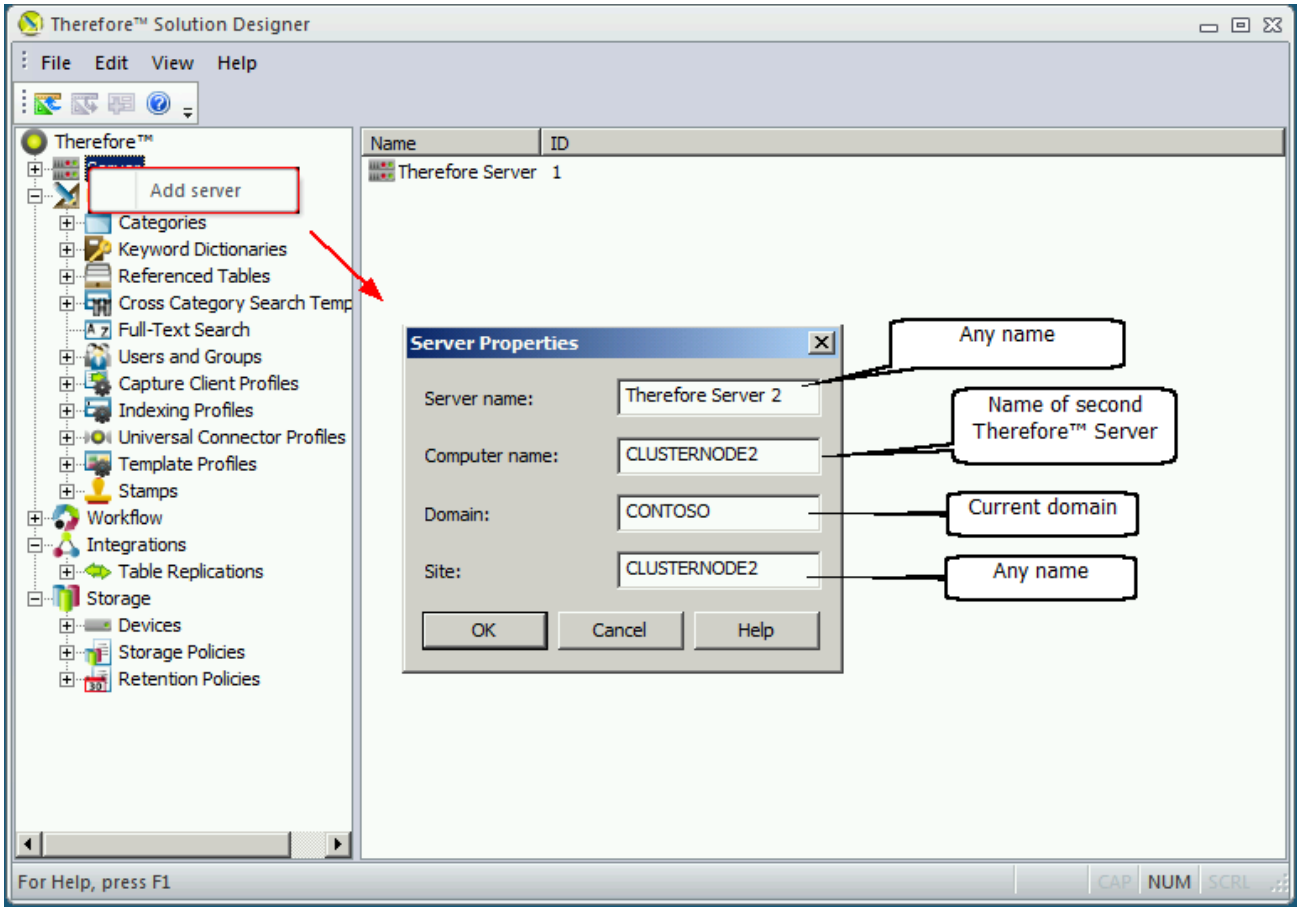




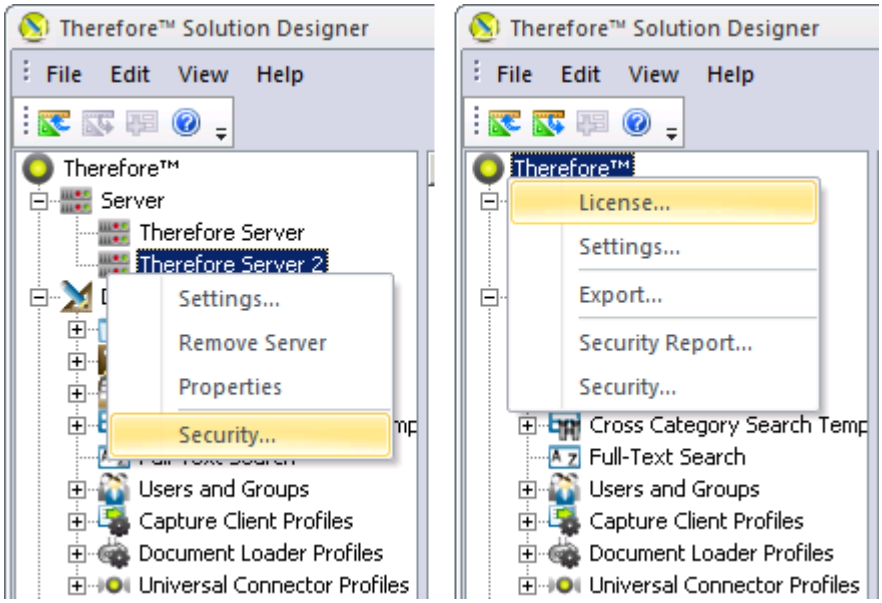
The Preview folder can also placed on the quorum disk or a network share. This can be configured under the advanced settings in the Therefore™ Solution Designer.



3. Once the setup is finished, open the Therefore™ Solution Designer and add the second Therefore™ Server.

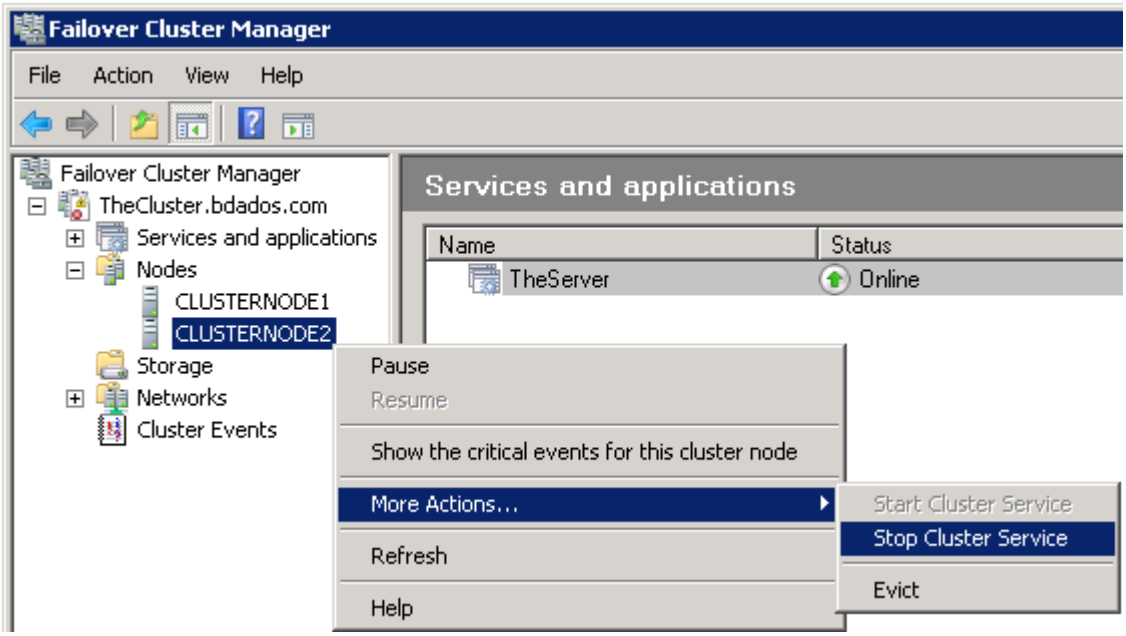


4. Define security for the new server and distribute license points. Move one server license to the second server. Note that this is only temporary.



6.1.2 Therefore™ Server installation - Node 2

1. Force failover by starting the cluster service on the second cluster node (if it's not running) and stopping the cluster service on the first cluster node.

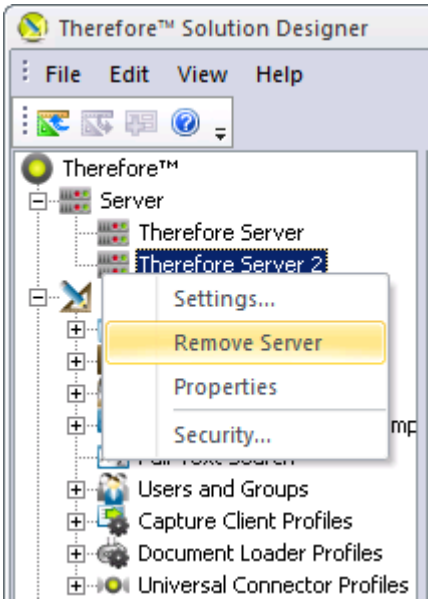


2. Run the Therefore™ Setup as usual. In the licensing dialog of the Configuration Wizard, choose the option to load the Therefore™ license from the Therefore™ database.

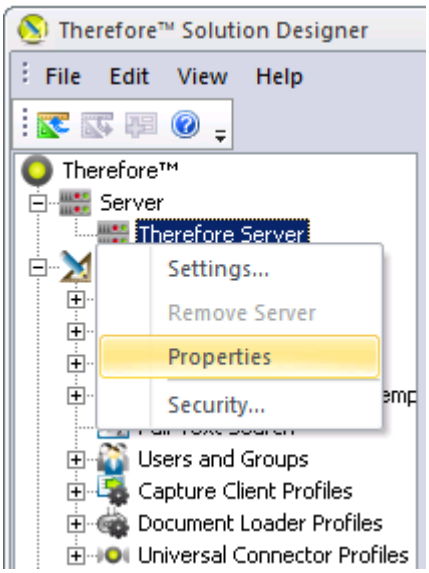
3. In the folder configuration dialogs of the Therefore™ Configuration Wizard, it is recommended to place the Therefore™ folders on the quorum disk or a network share.

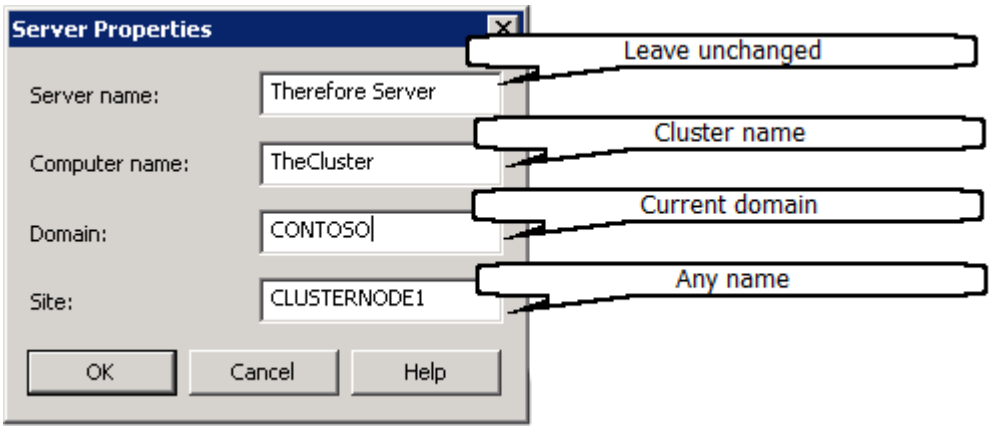
6.1.3 Configuring the Therefore™ system for clustering

1. After Therefore™ has been successfully installed on both cluster nodes, open the Solution Designer on any Therefore™ Server and remove the second Therefore™ Server.

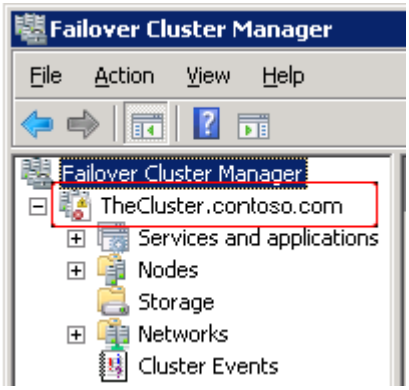


2. Rename the first Therefore™ Server.

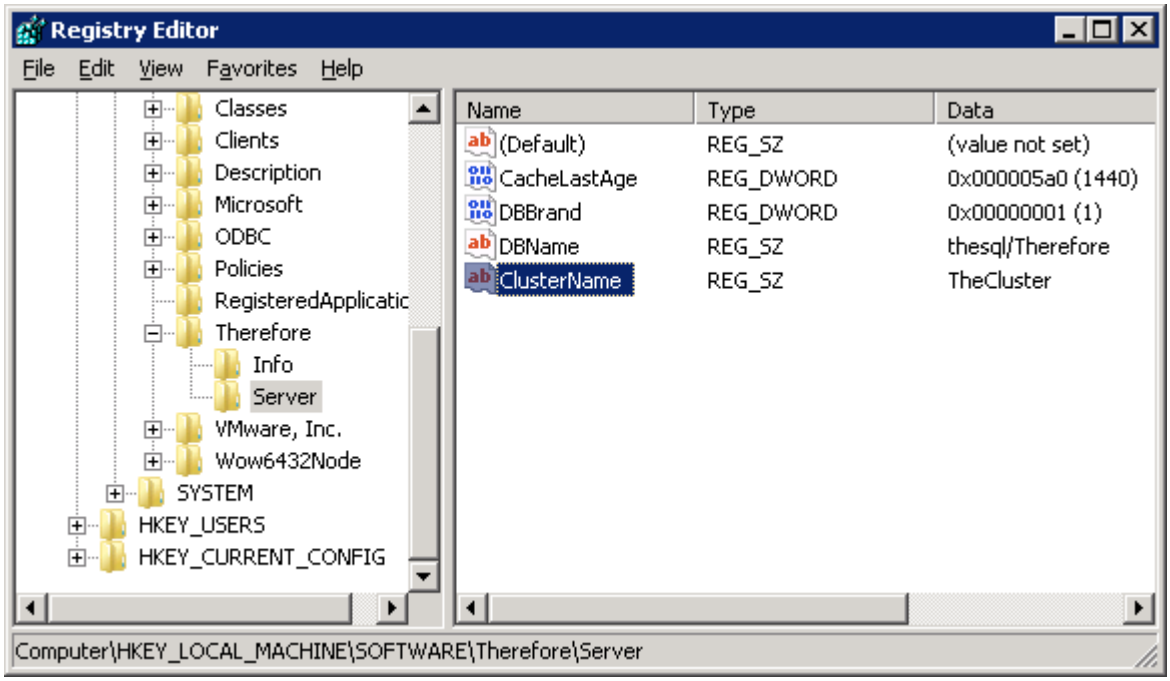




The cluster name can be seen in the Failover Cluster Manager console:

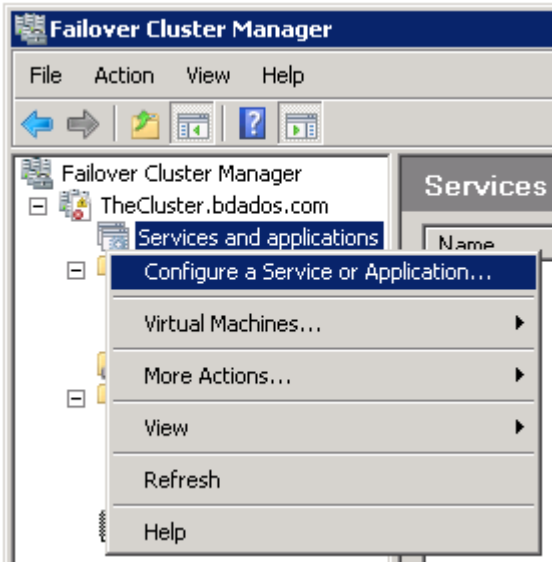


3. Add the cluster name to the registry on both cluster nodes.

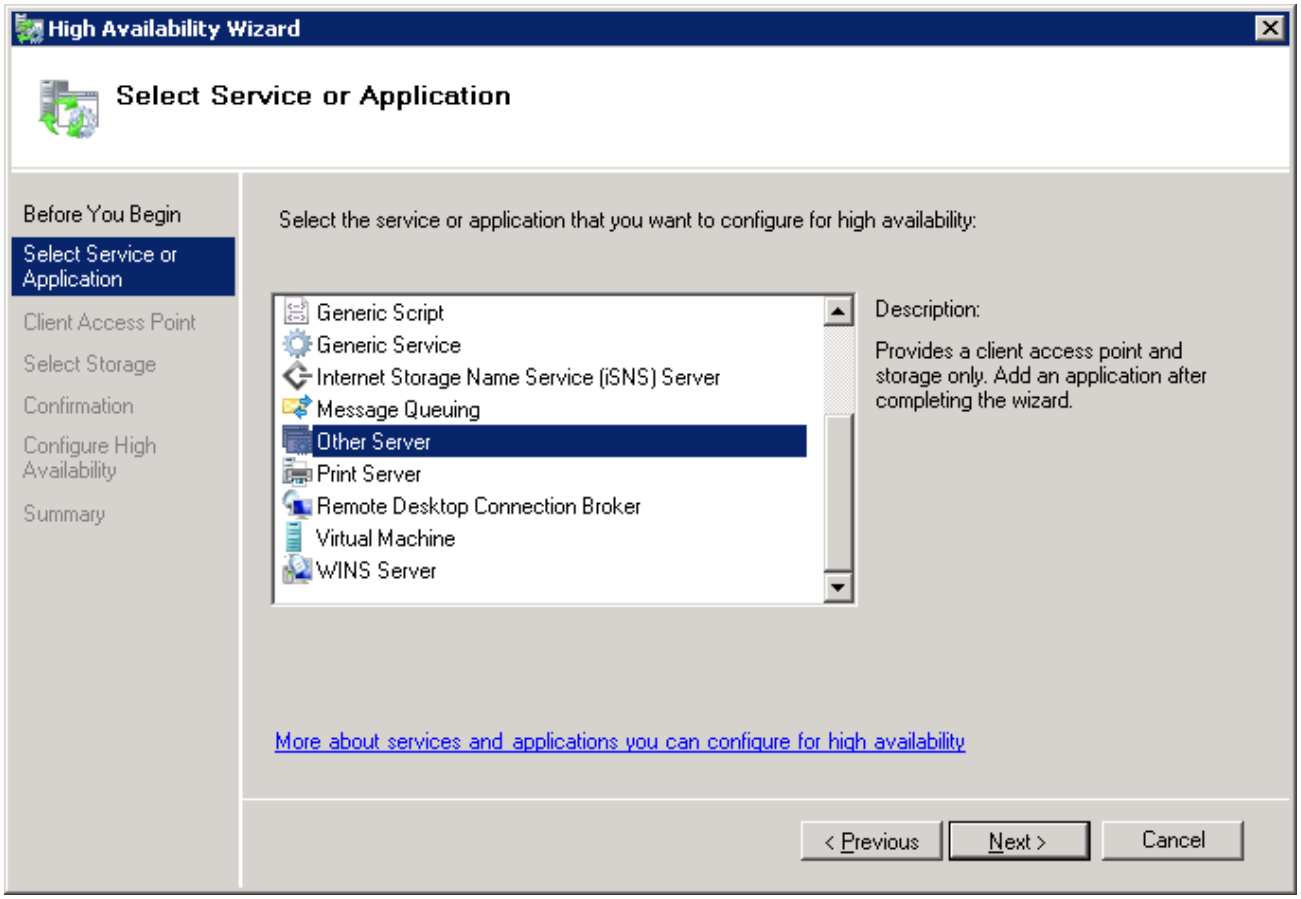


6.1.4 Adding the Therefore™ Server Application to the cluster

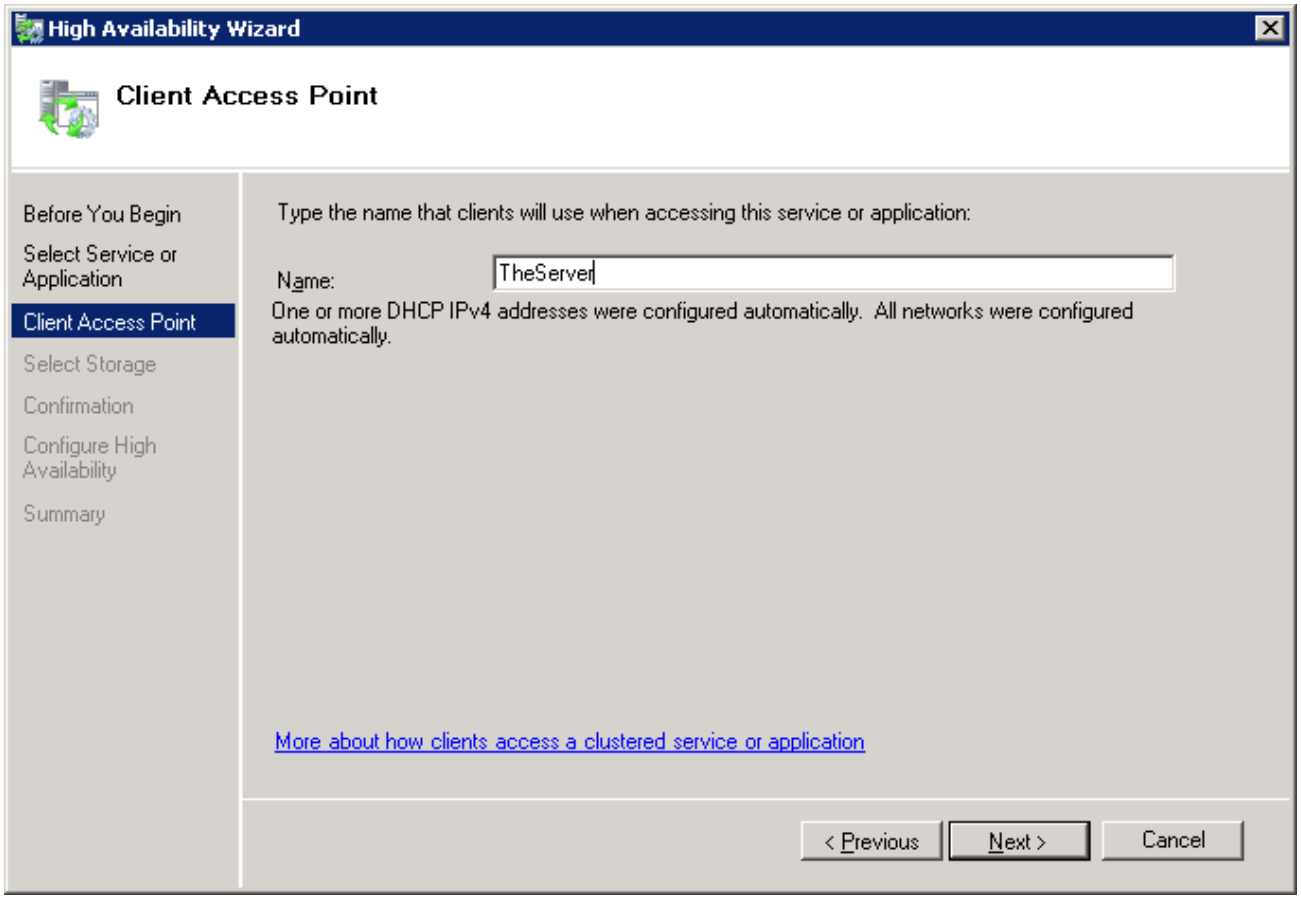
1. Expand the cluster in the Failover Cluster Manager console. Right-click on Services and applications and select Configure a Service or Application.



2. Choose Other Server.

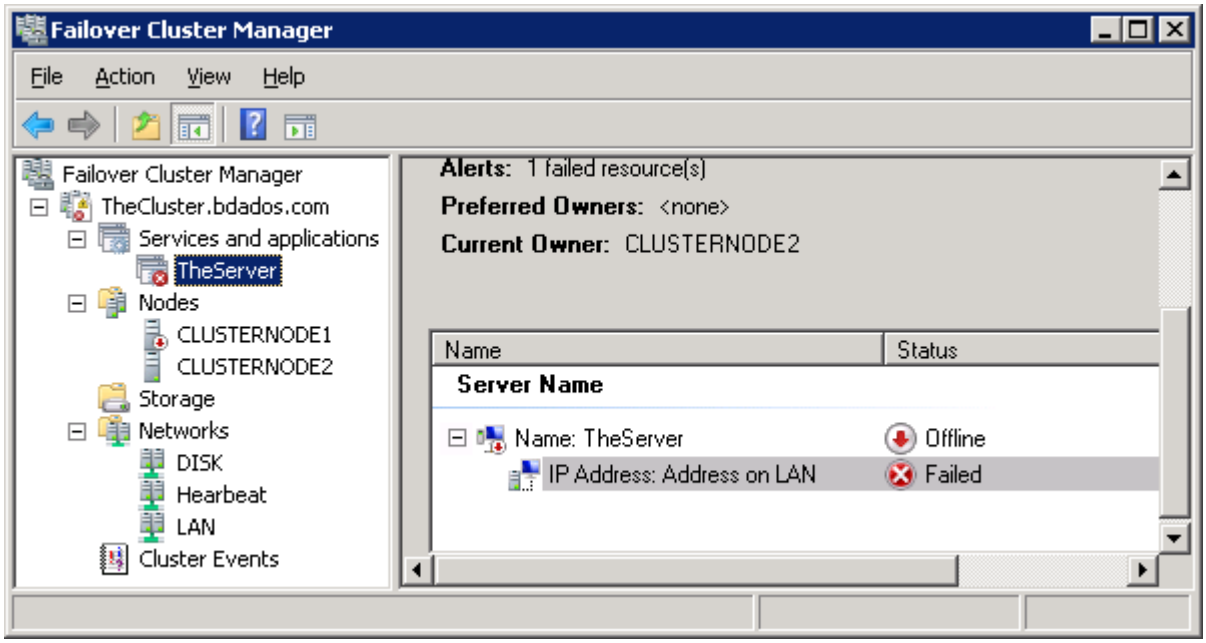


3. Define any application name (in this example we're using TheServer) and finalize the application creation.



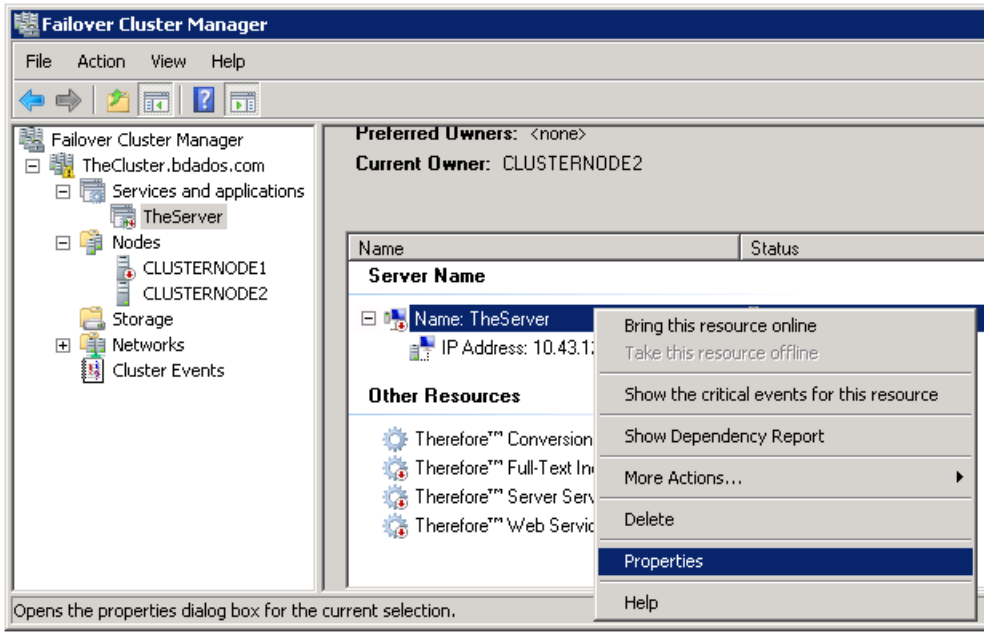
It is not necessary to define storage or the IP address for the application in this wizard. This can be done later.

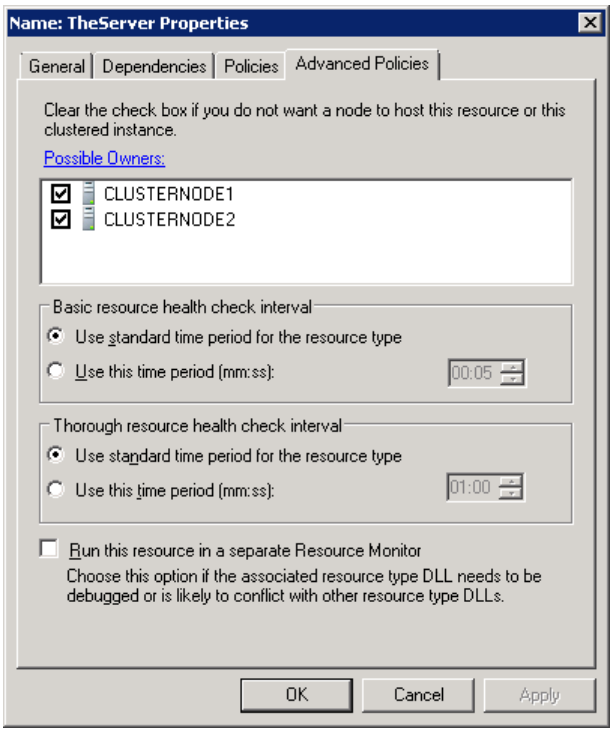
4. Highlight the newly created resource and ensure the IP address items has the status Offline. If it's not, check if the item has a valid IP address (open its Properties).



5. After the configuration is done, right-click the TheServer resource and choose Bring this resource online. If everything is configured properly, the status of both items (TheServer and IP Address) will change to Online.

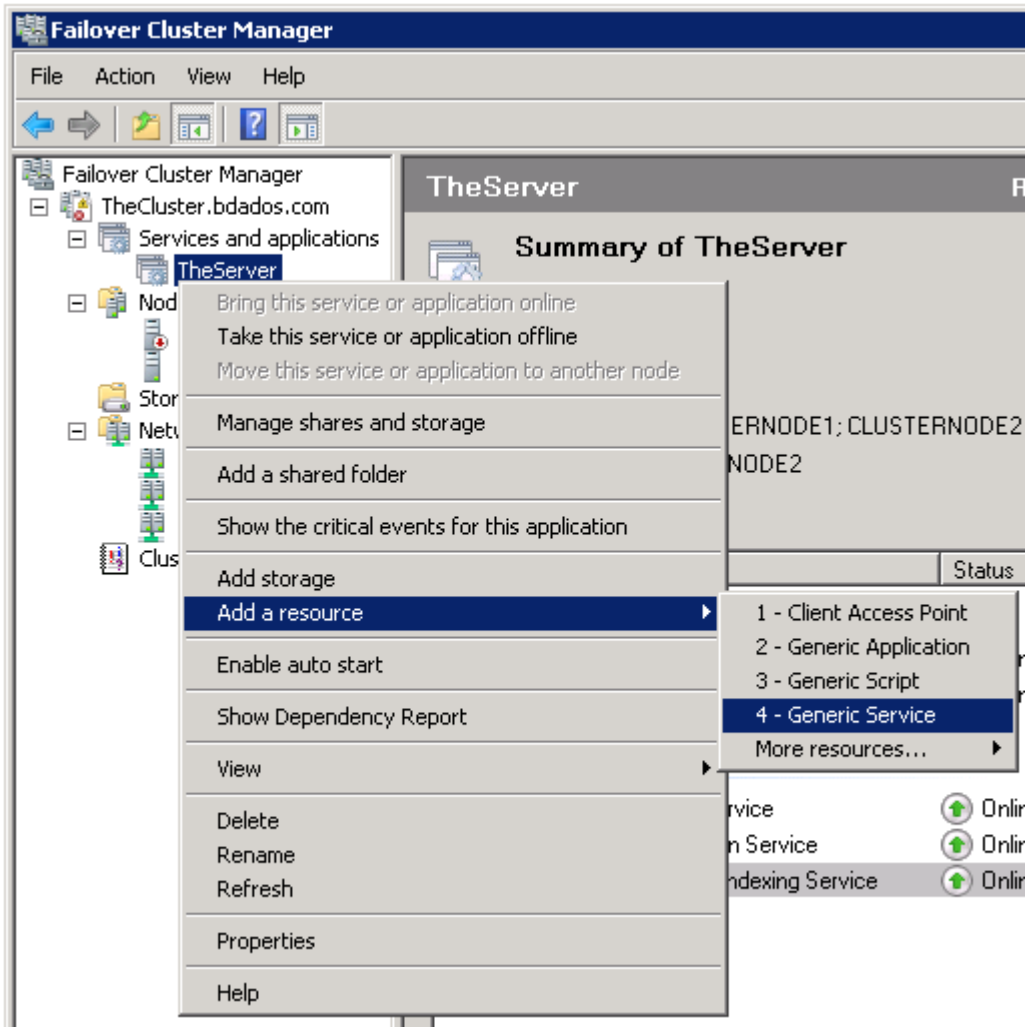
6. Make sure that both cluster nodes are configured to own the resource, as per the screenshots below.



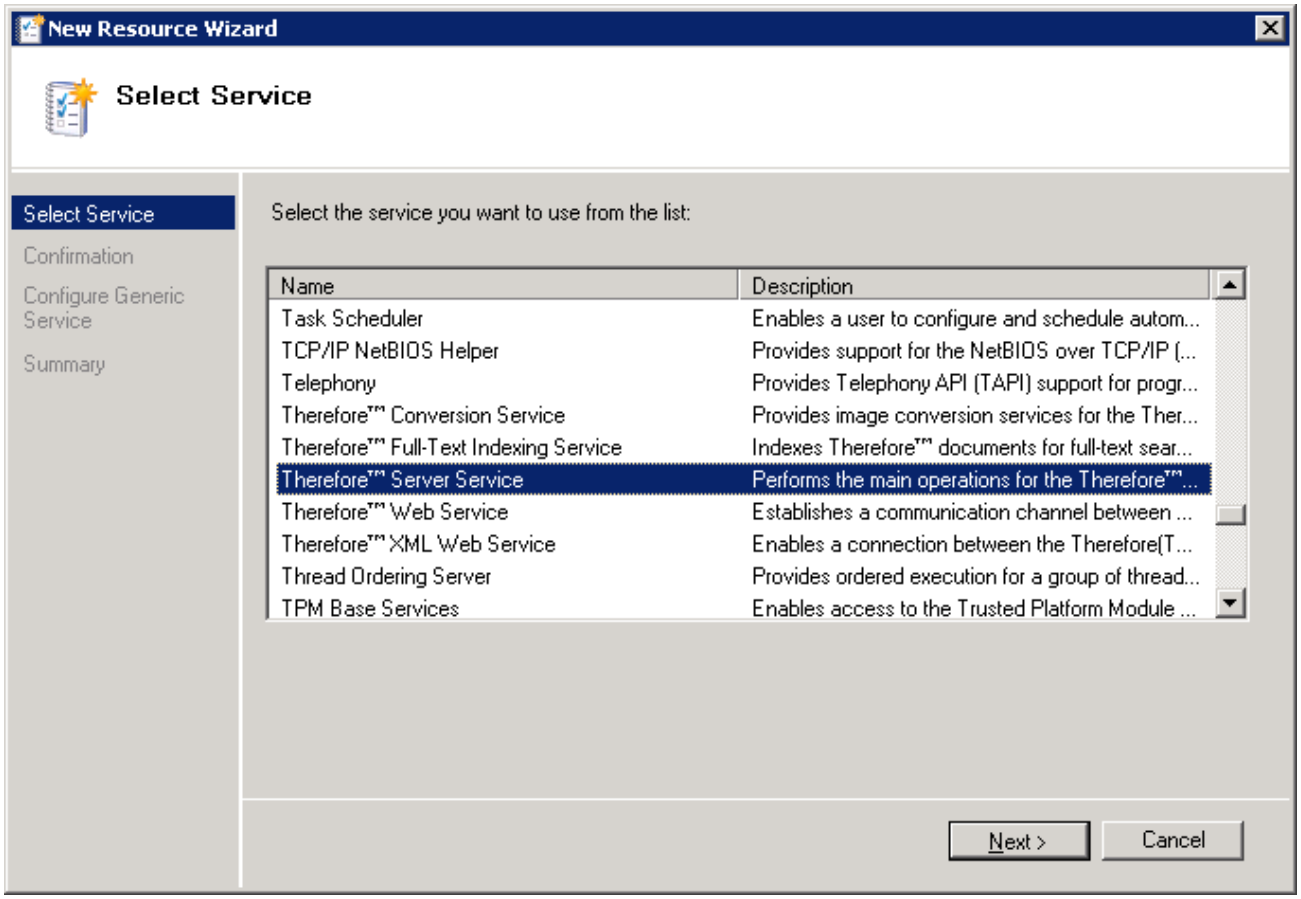


6.1.5 Adding Therefore™ services to the application

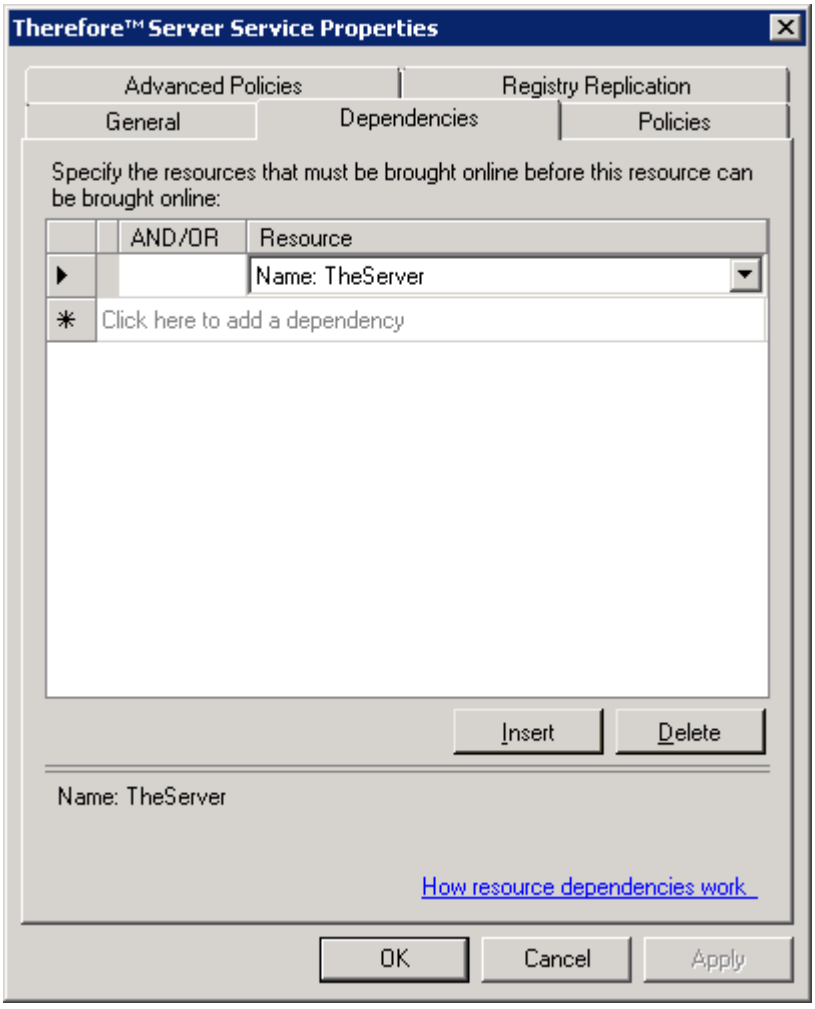
1. Right-click on the TheServer application. Expand Add a resource and choose 4 - Generic Service.



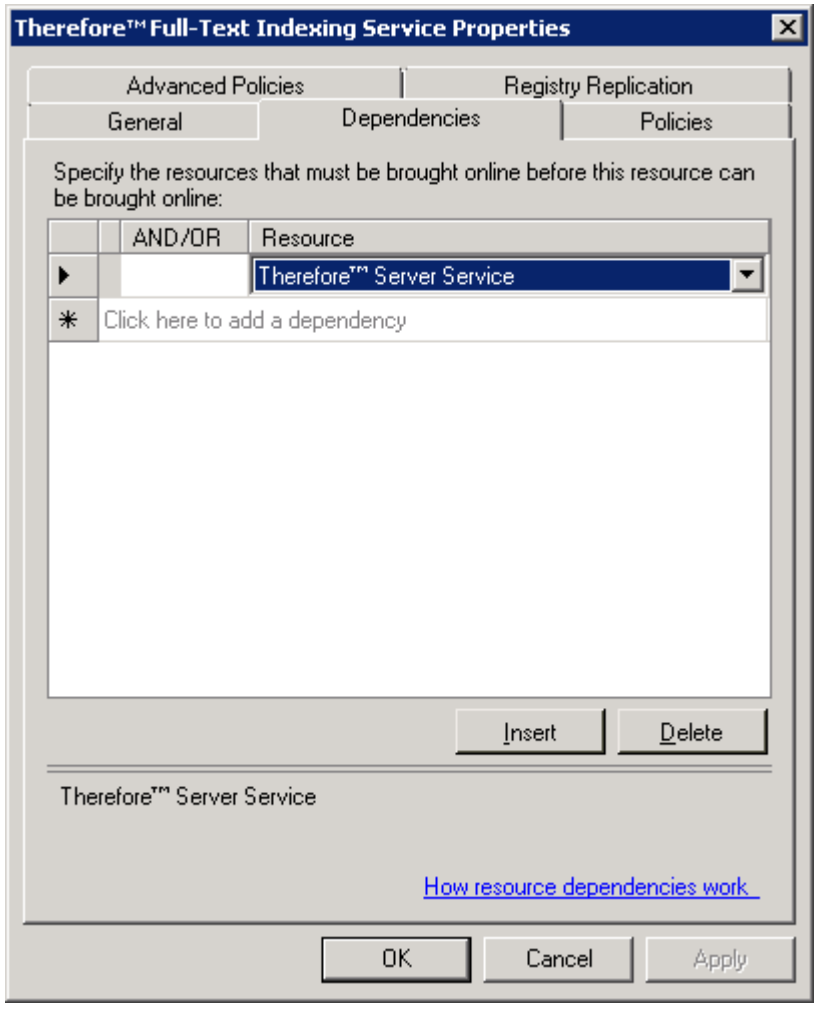
2. Start by adding the Therefore™ Server Service.



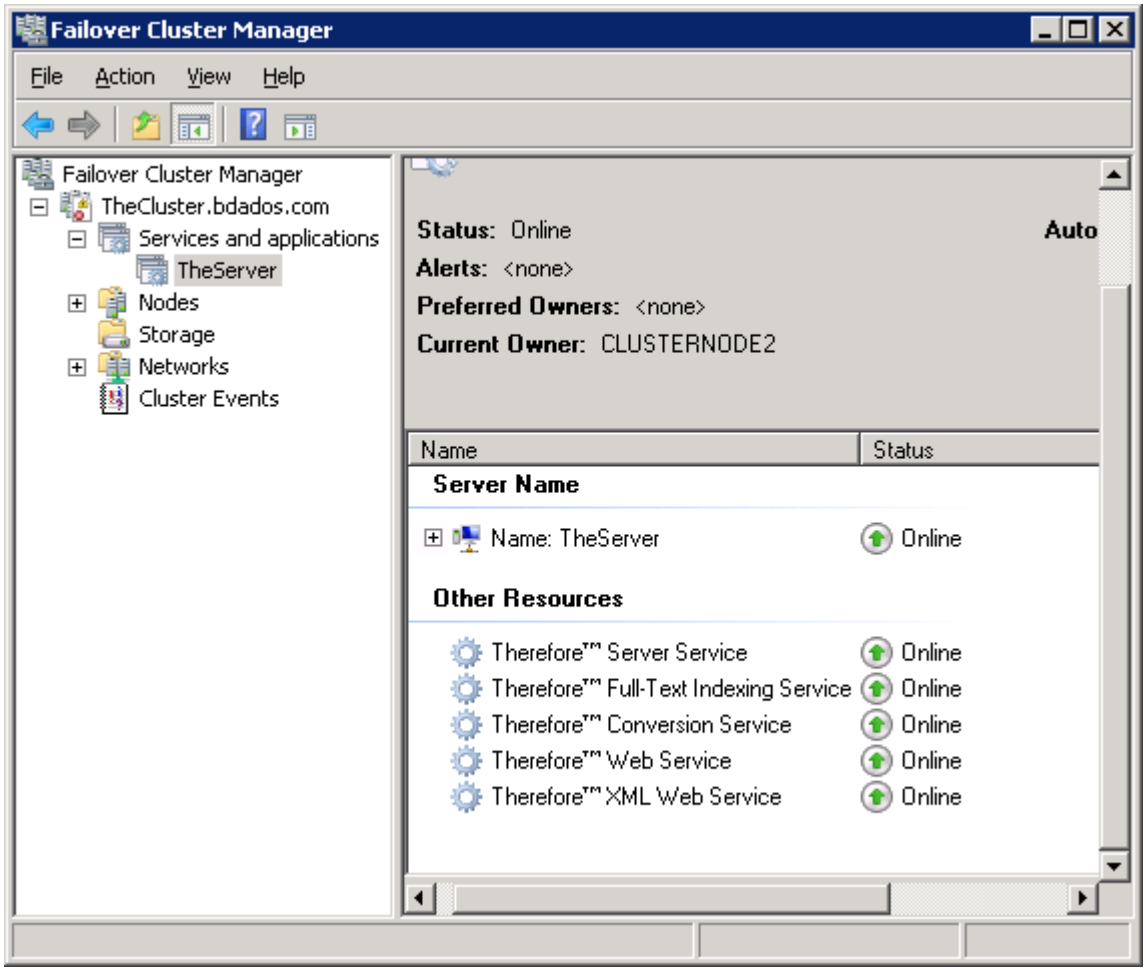
3. Configure the dependencies for the Therefore™ Server Service. Go to Properties and configure the Therefore™ Server Service to be dependent on the TheServer resource.



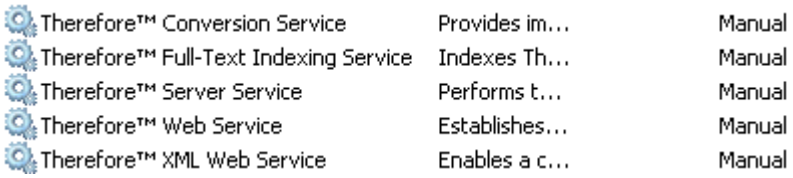
4. Add the remaining Therefore™ services in the same manner and configure them to be dependent on the Therefore™ Server Service.



5. Once done, your configuration should look similar to the screenshot below.



6. If configured properly, the Therefore™ servuces startup type will be automatically change to Manual on both cluster nodes.



Screenshot from the Windows Services console.

6.1.6 Configuring client connections

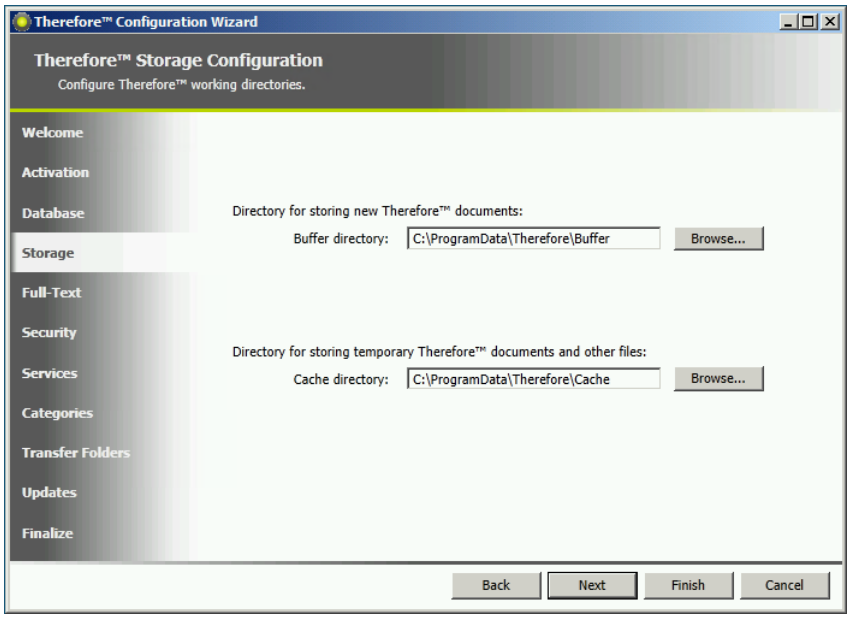
Configure Therefore™ clients to connect to the cluster name or IP address of the cluster.

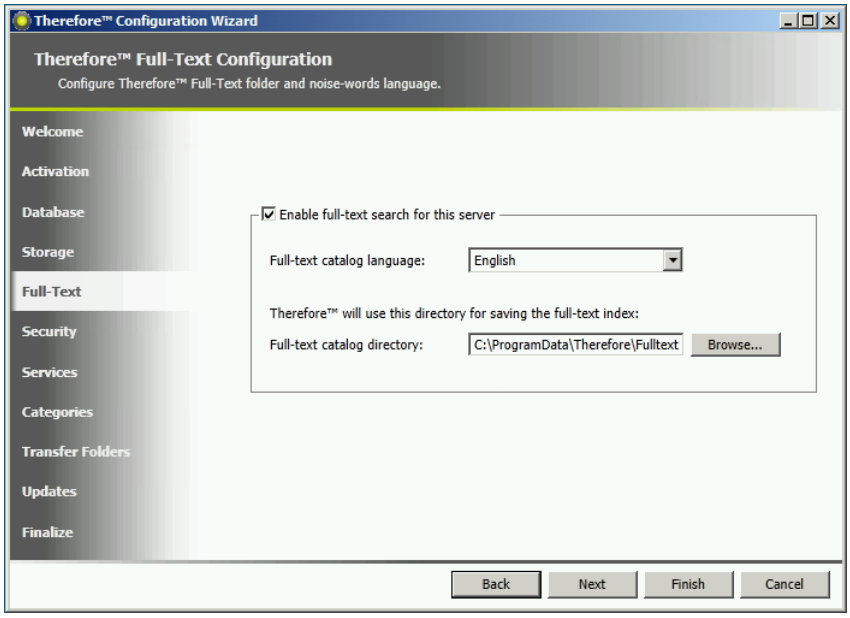
6.2 Windows Server 2012 R2

6.2.1 Therefore™ Server installation - Node 1

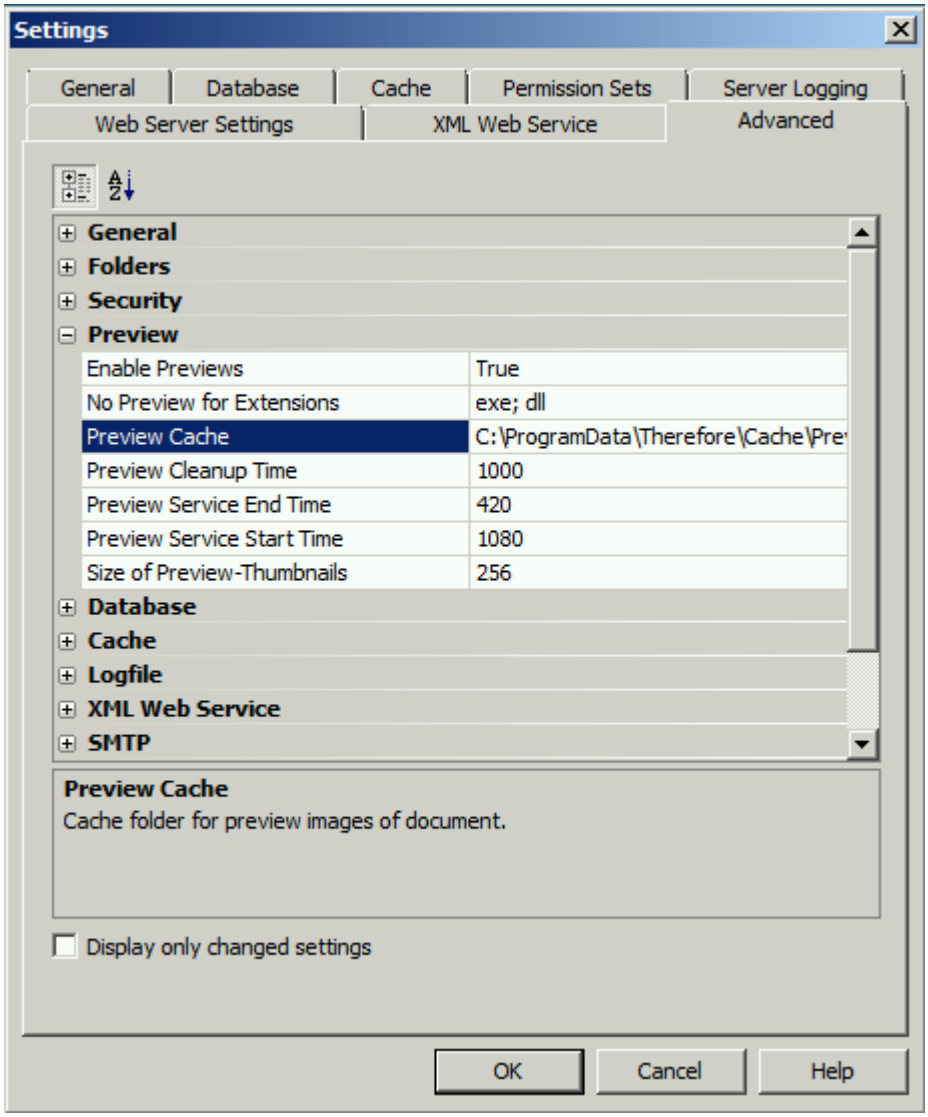
1. Run the Therefore™ Setup as usual. For more information, see the Installation Guide.

2. In the folder configuration dialogs of the Therefore™ Configuration Wizard, it is recommended to put the Therefore™ folders on the quorum disk or a network share.

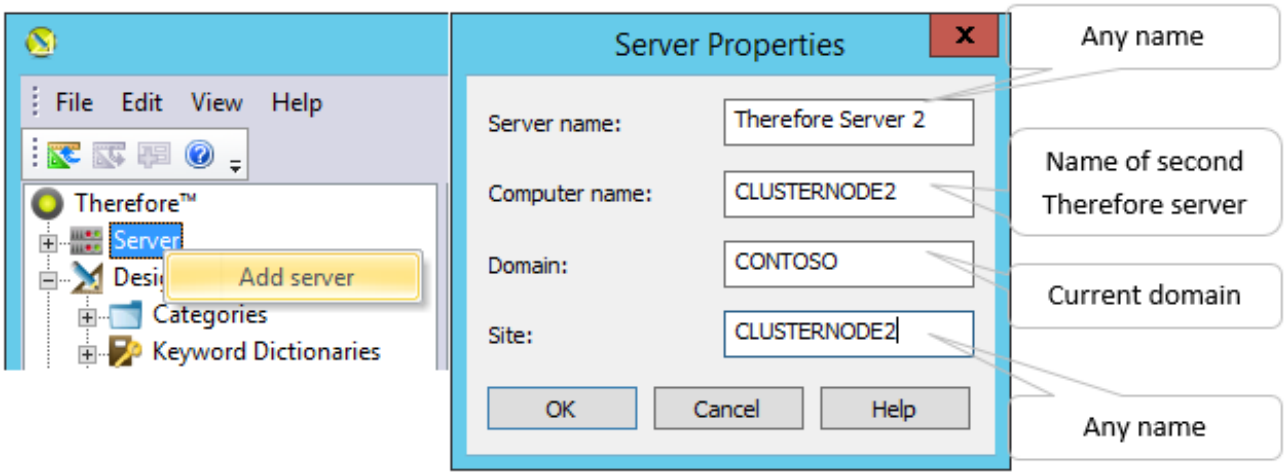




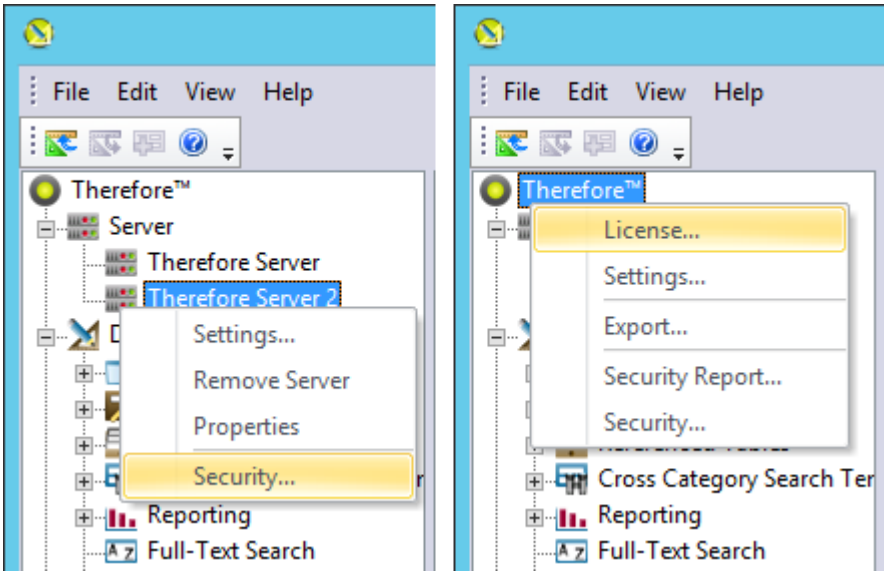
The Preview folder can also be placed on the quorum disk or a network share. This can be configured under the advanced settings in the Therefore™ Solution Designer.



3. Once the setup is finished, open the Therefore™ Solution Designer and add the second Therefore™ Server.

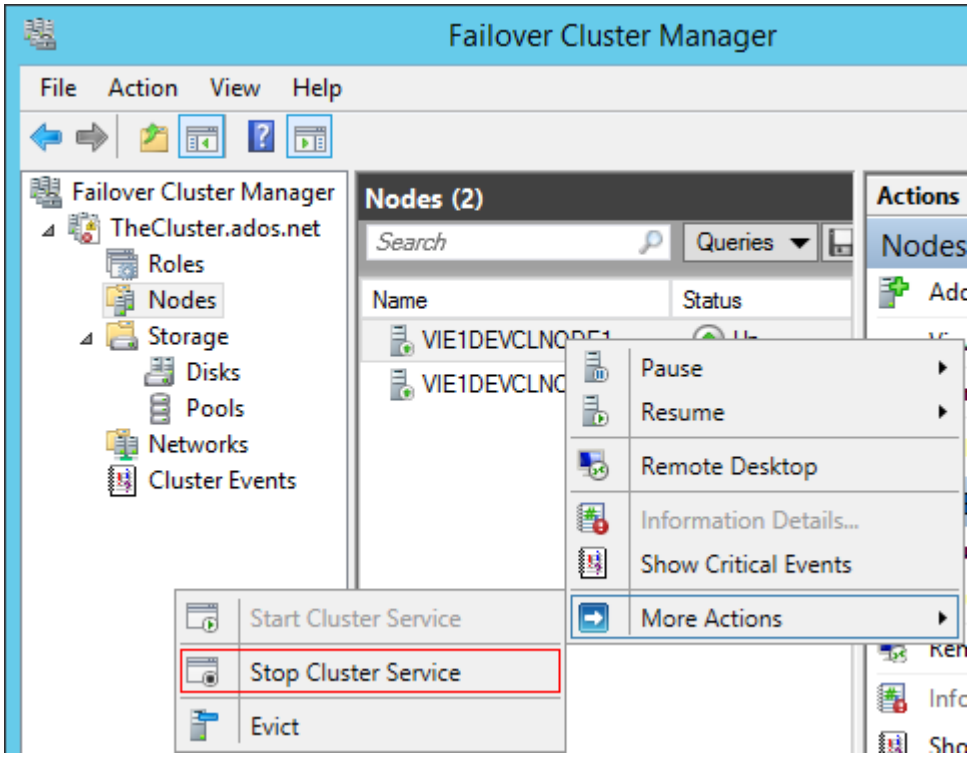


4. Define security for the new server and distribute license points.



6.2.2 Therefore™ Server installation - Node 2

1. Force failover by starting the cluster service on the second cluster node (if it's not running) and stopping the cluster service on the first cluster node.

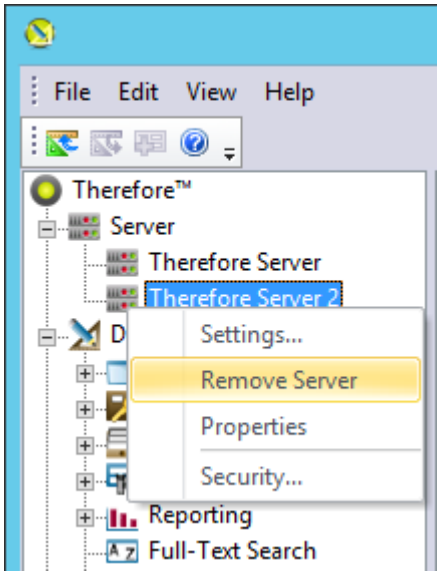


2. Run the Therefore™ Setup as usual. In the licensing dialog of the Configuration Wizard, choose the option to load the Therefore™ license from the Therefore™ database.

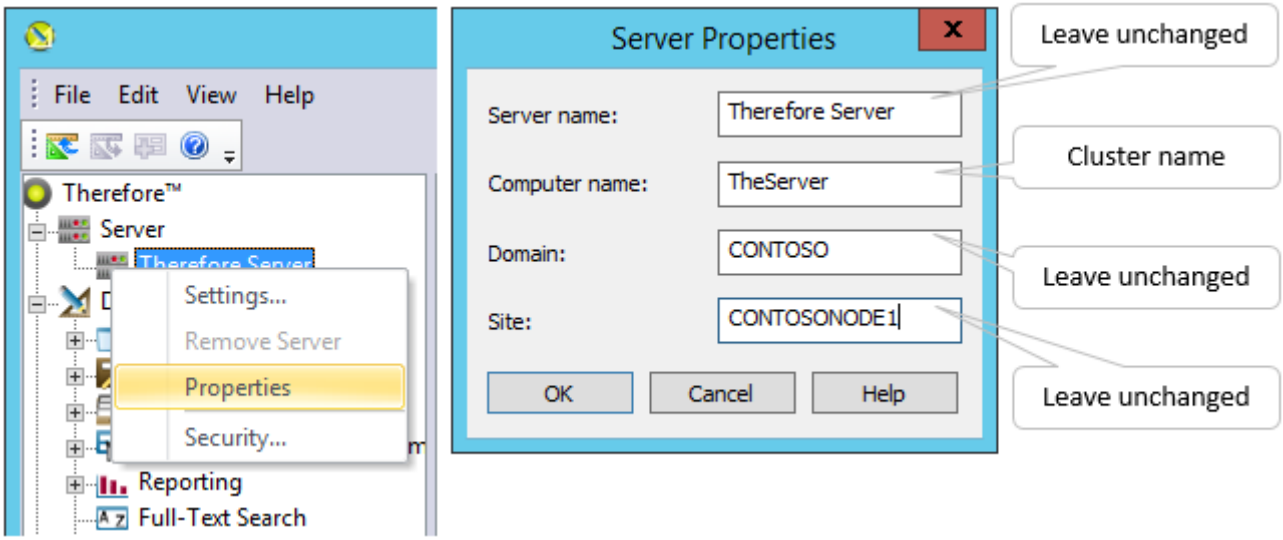
3. In the folder configuration dialogs of the Therefore™ Configuration Wizard, it is recommended to place the Therefore™ folders on the quorum disk or a network share.

6.2.3 Configuring the Therefore™ system for clustering

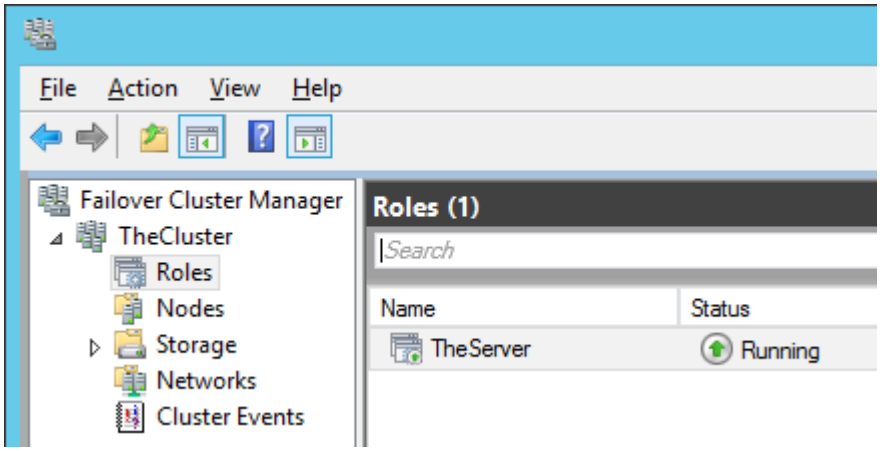
1. After Therefore™ has been successfully installed on both cluster nodes, open the Solution Designer on any Therefore™ Server and remove the second Therefore™ Server.



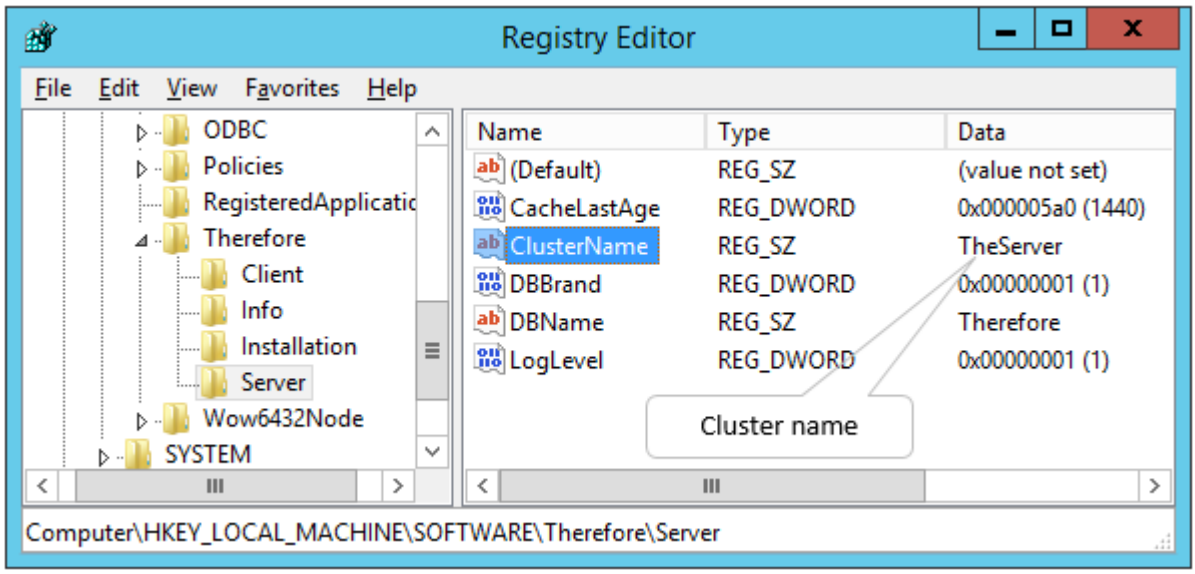
2. Rename the first Therefore™ Server.



The cluster name can be seen in the Failover Cluster Manager console:

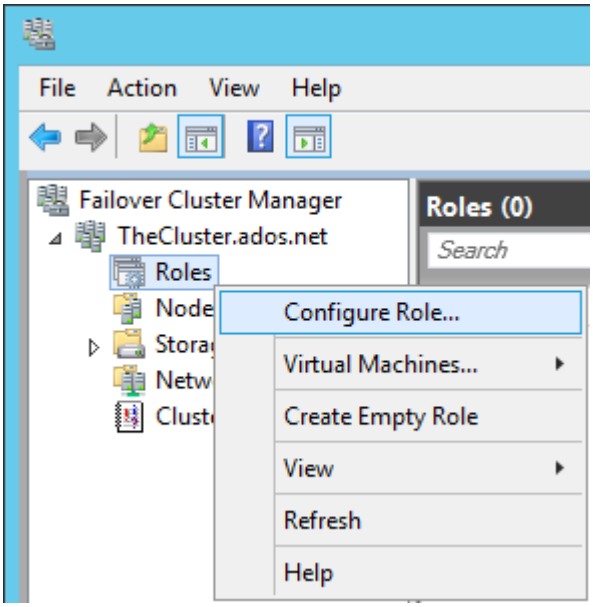


3. Add the cluster name to the registry on both cluster nodes.

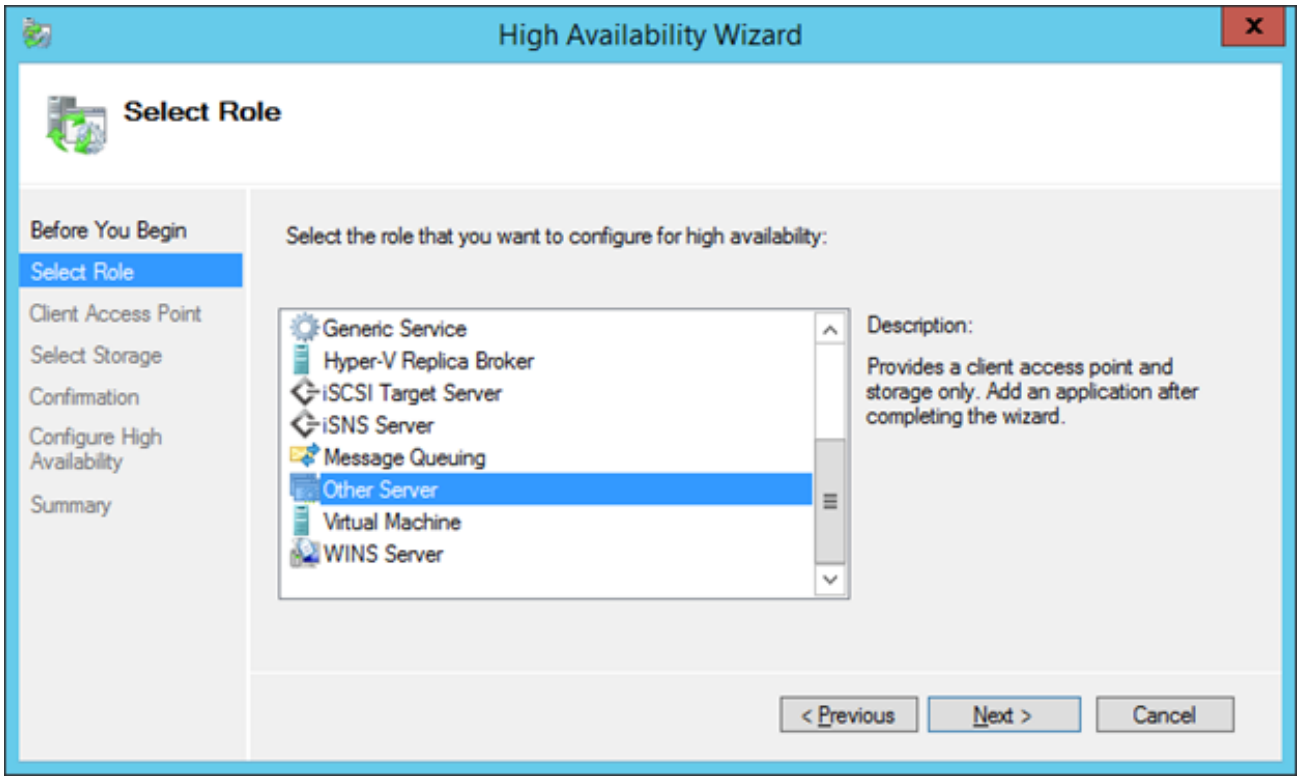


6.2.4 Adding the Therefore™ Server Application to the cluster

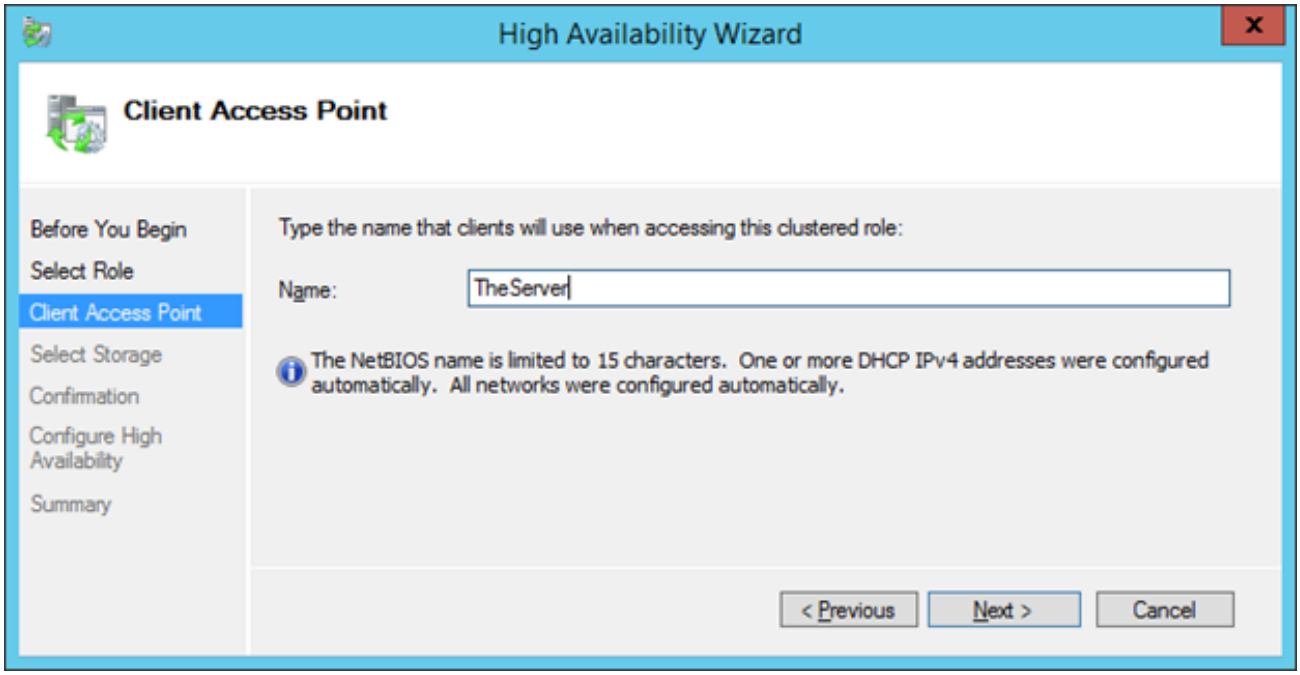
1. Expand the cluster in the Failover Cluster Manger console, right-click on Roles and choose Configure Role...



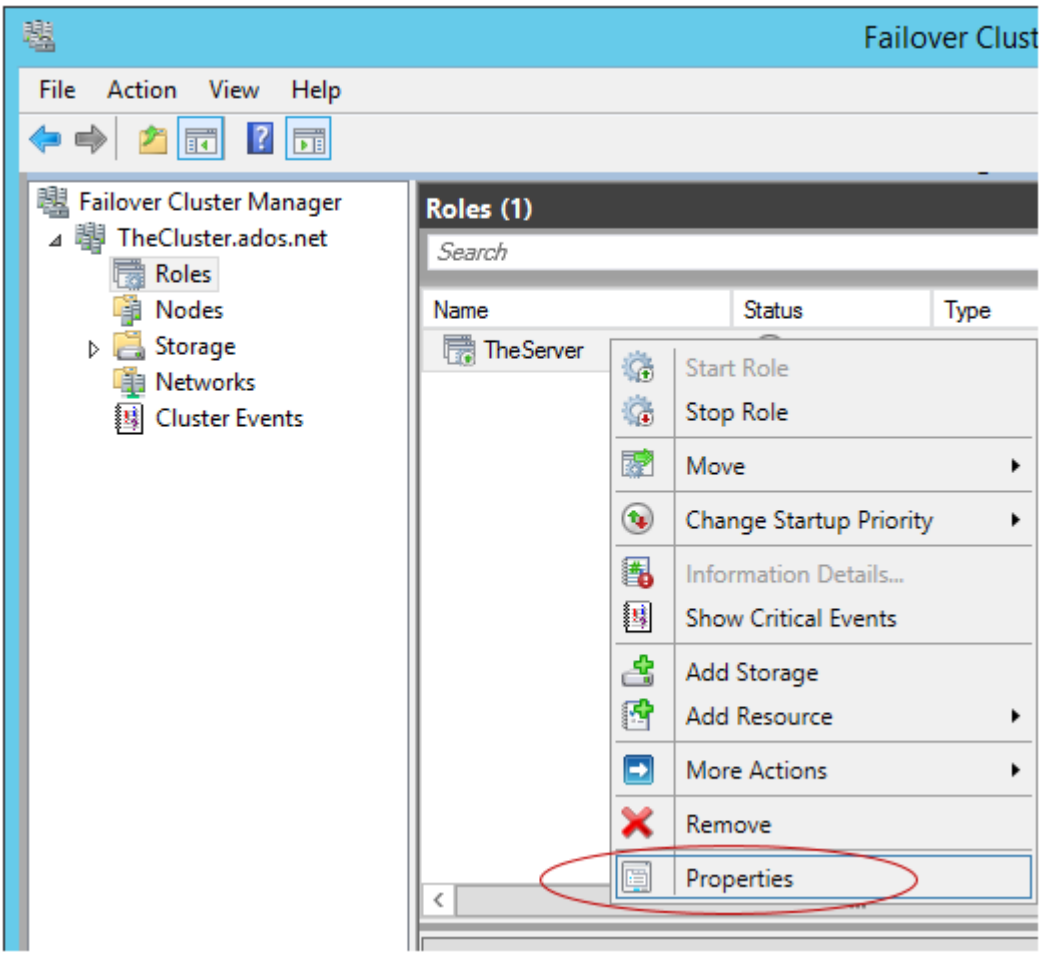
2. Choose Other Server.



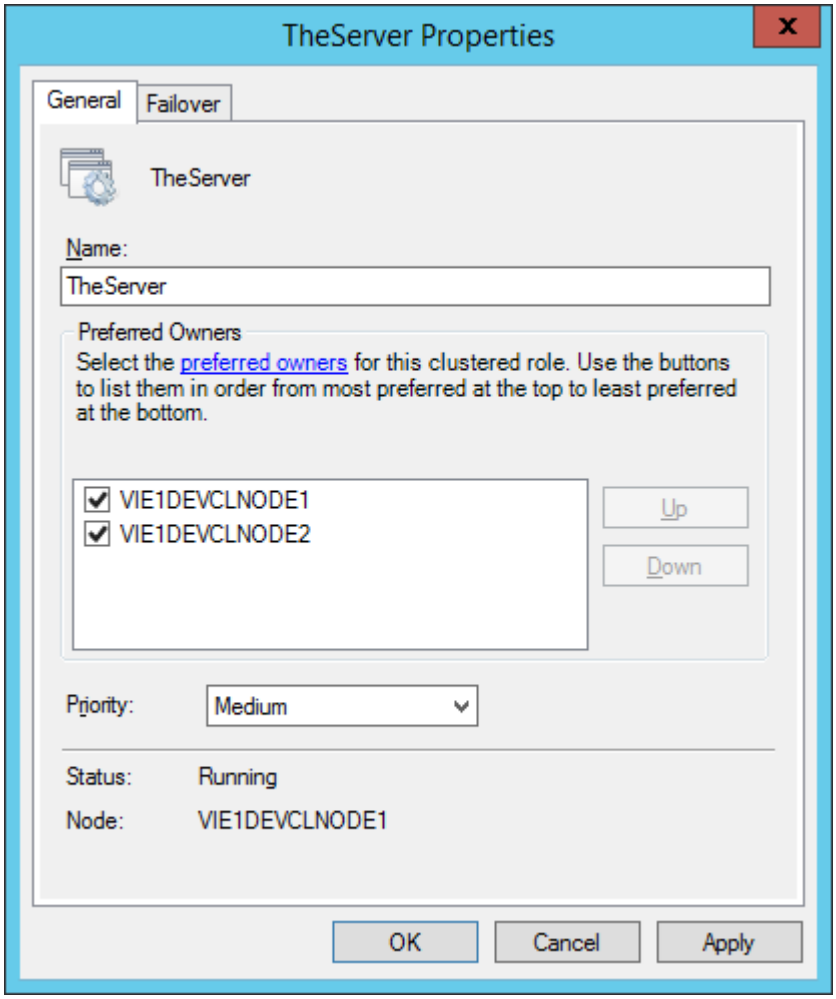
3. Define an application name and finalize application creation.



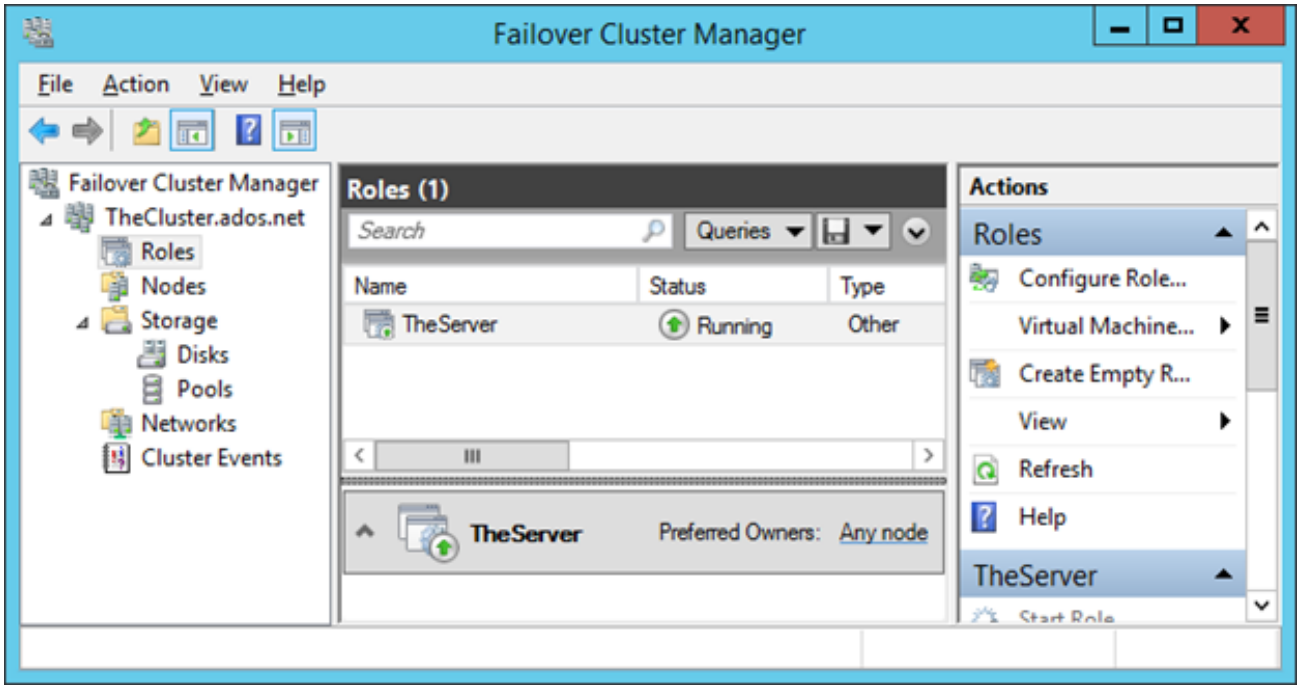
4. Right-click on the TheServer item and select Properties.



5. Tick the cluster nodes that have been created for Therefore™ and click OK.

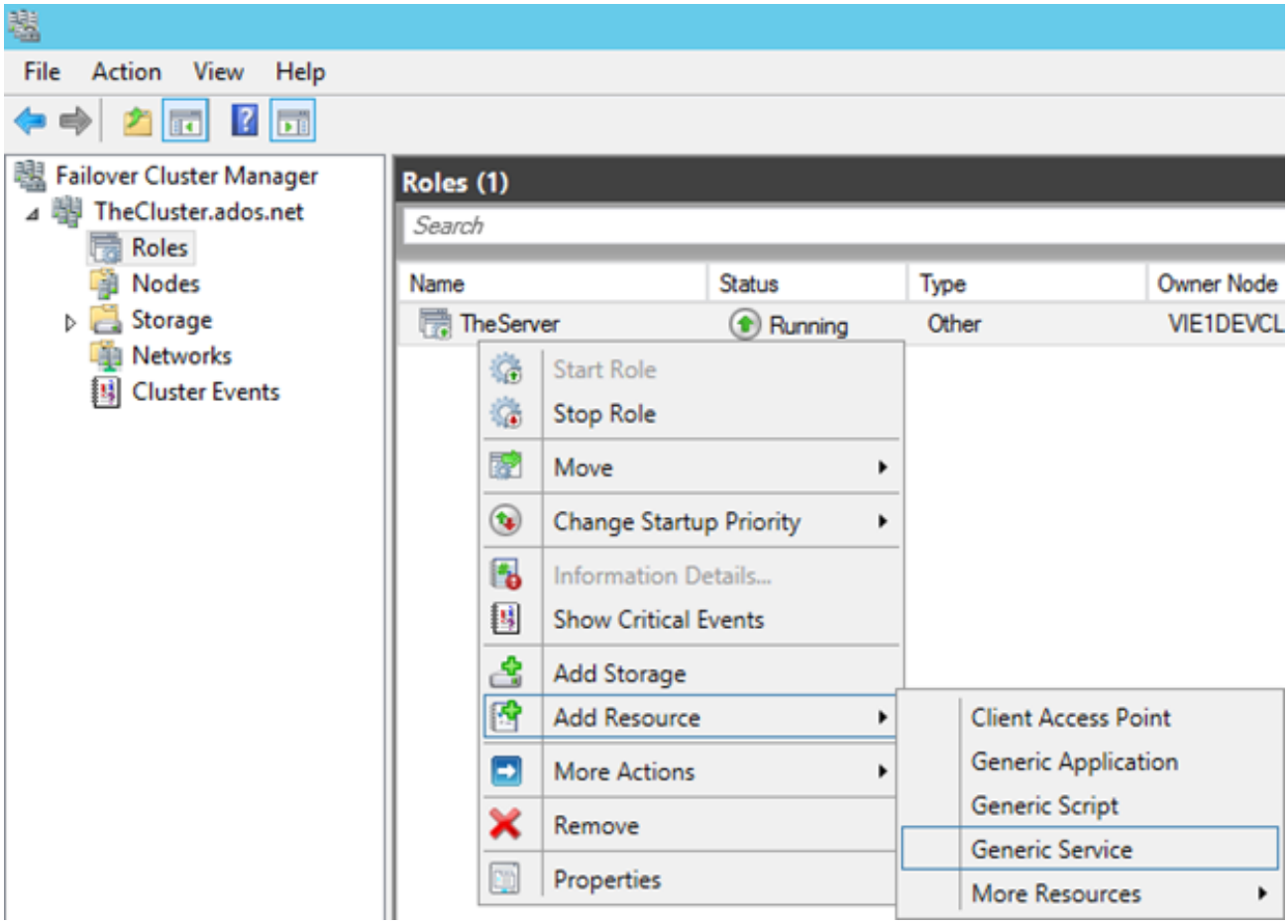


6. If everything is configured properly, the status of the TheServer role will change to "Running".

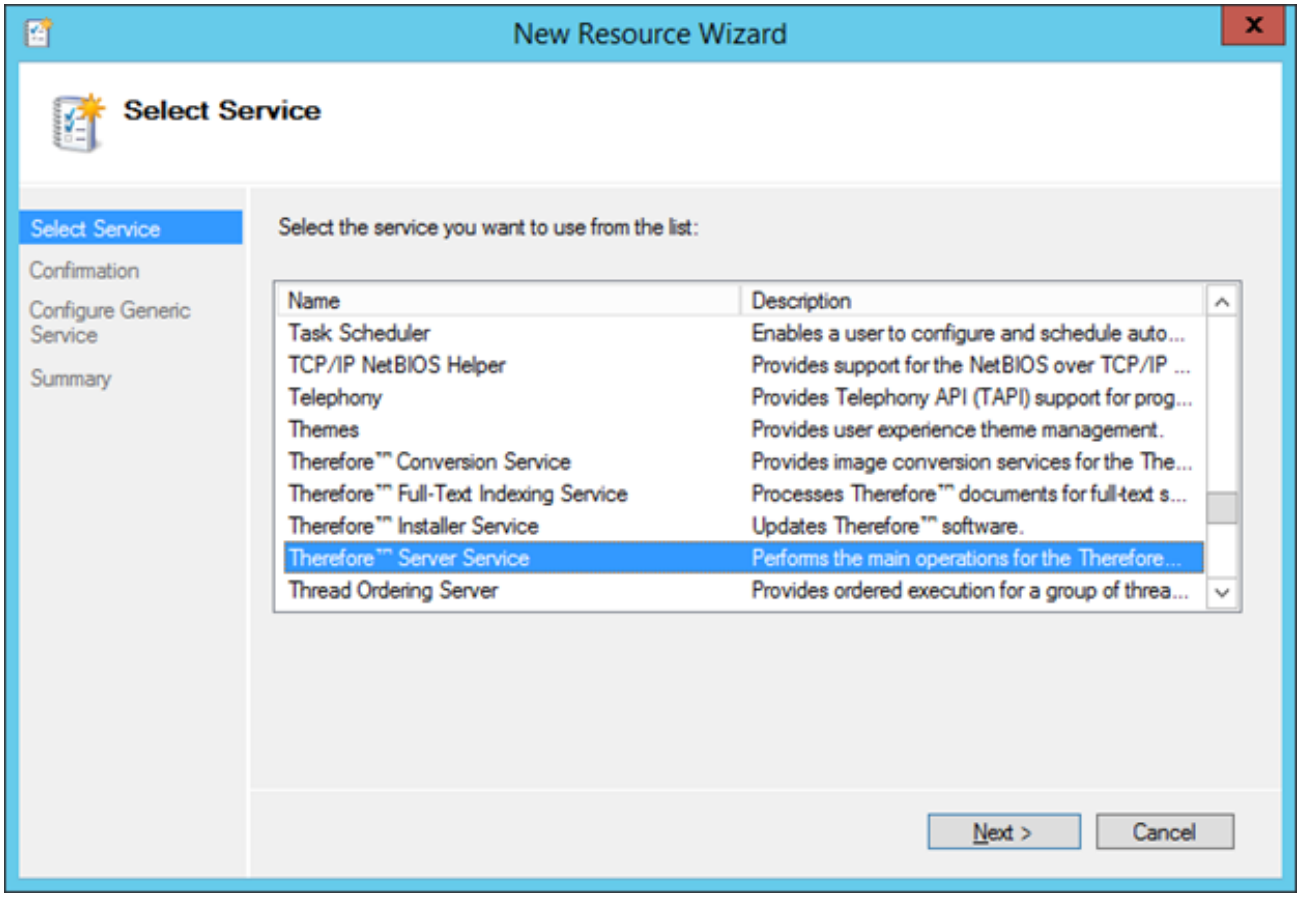


6.2.5 Adding Therefore™ services to the application

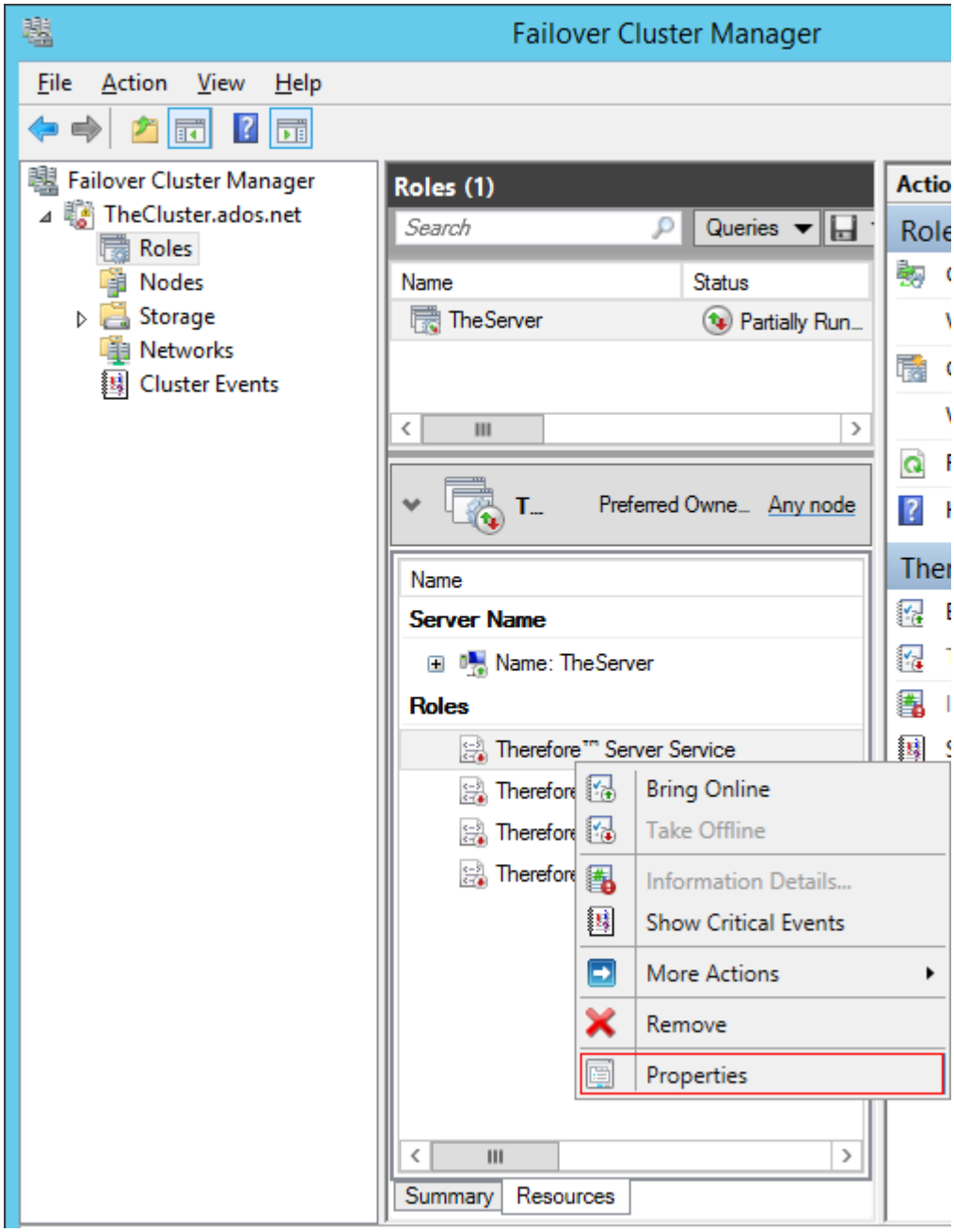
1. Right-click on the TheServer role, then select Add Resource and Generic Service.



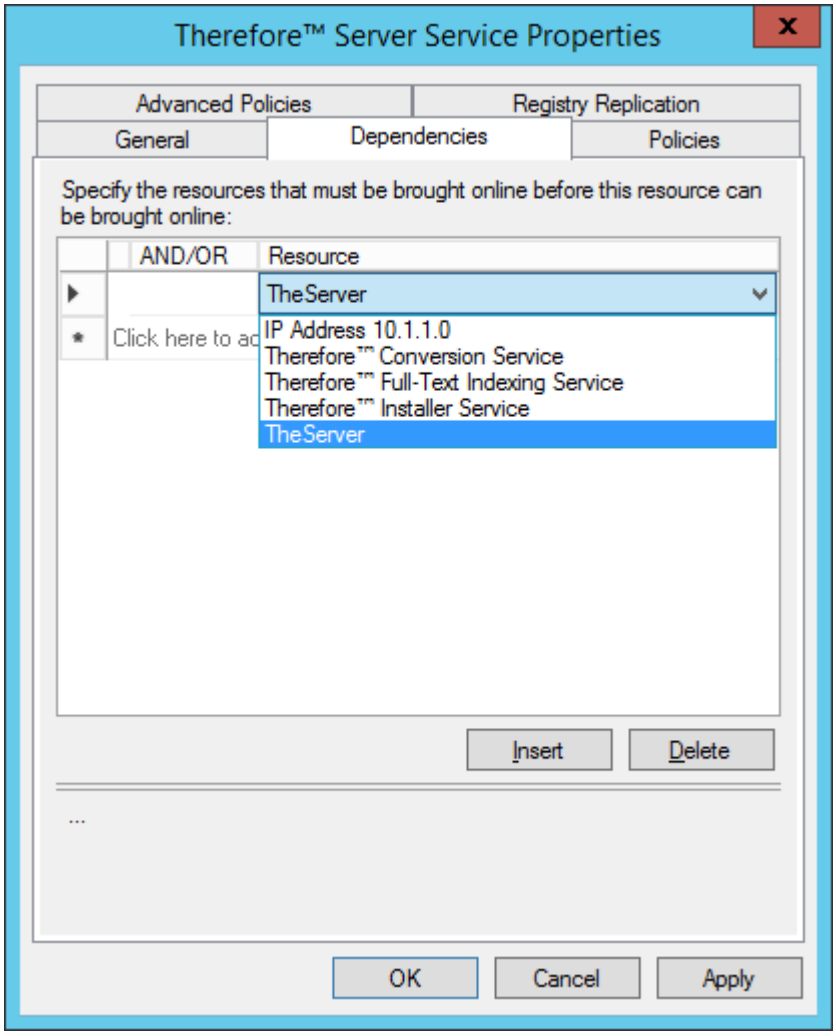
2. Select the Therefore™ Server Service and finalize adding the service.



3. To configure the dependencies for the Therefore™ Server Service, right-click and select Properties.

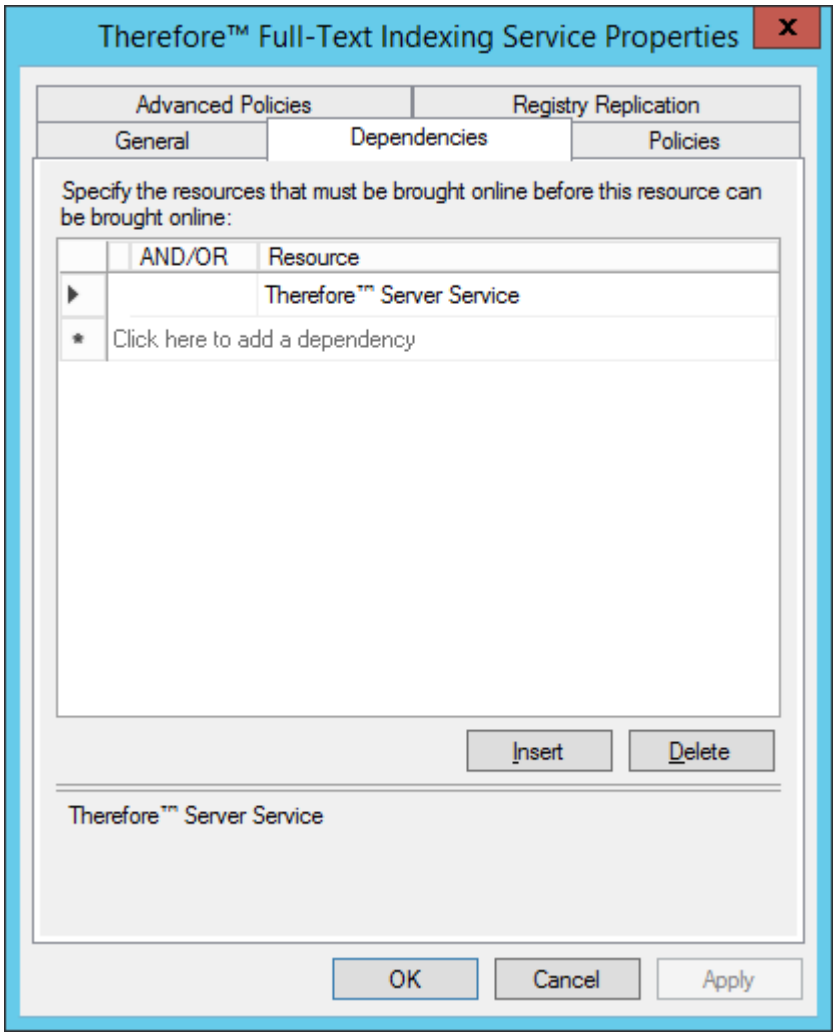


4. Configure the Therefore™ Server Service to be dependent on the TheServer resource.

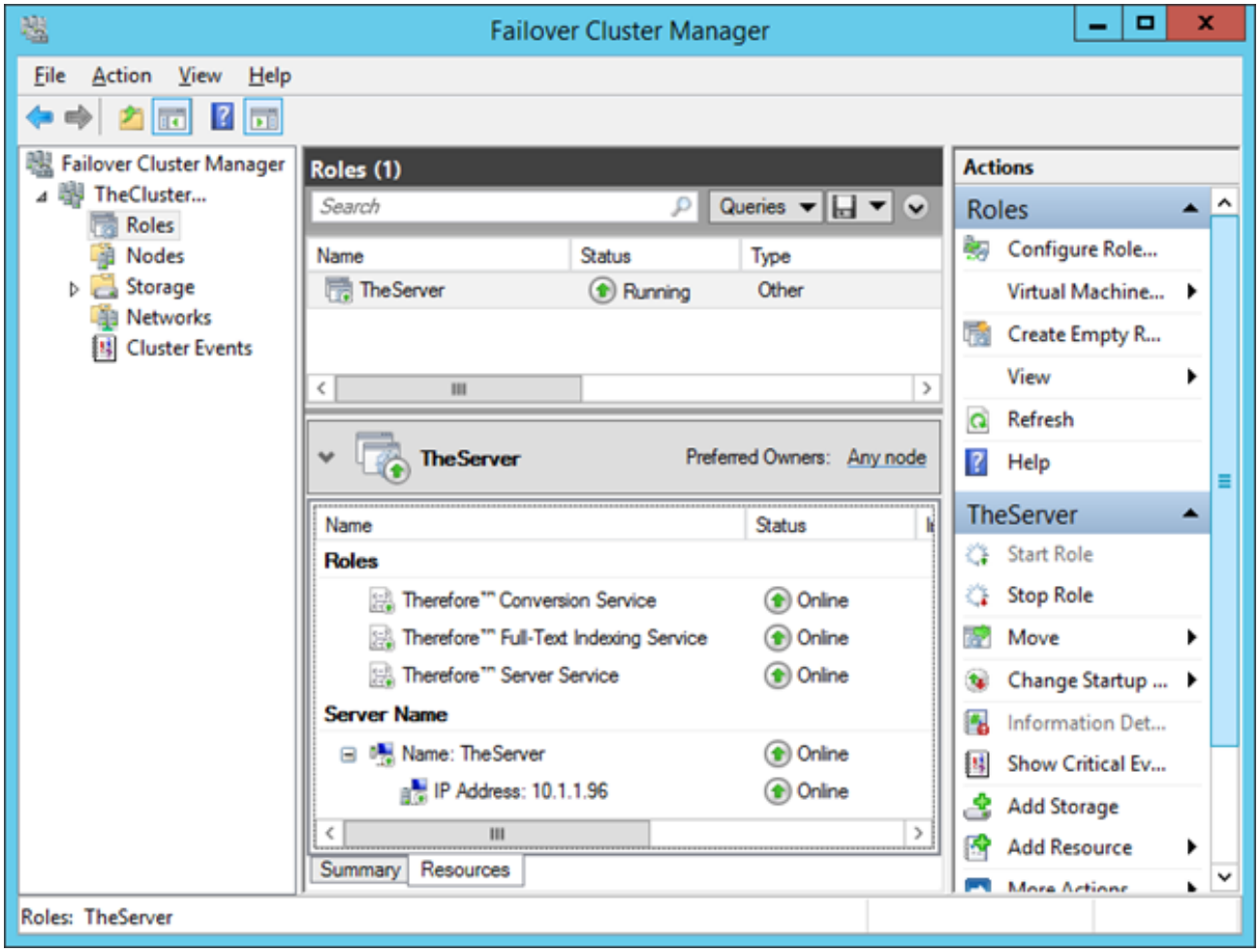


5. Add other Therefore™ services in the same manner; configure them to be dependent on the Therefore™ Server Service.

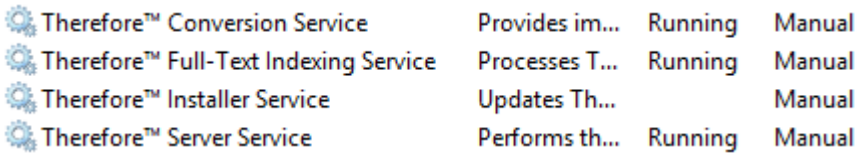
- Therefore™ Conversion Service: do not configure any dependencies for this service.
- Do not add the Therefore™ Installer Service.


Therefore™ Full-Text Indexing Service Properties
Advanced Policies
Registry Replication
General
Dependencies
Policies
Specify the resources that must be brought online before this resource can be brought online:
AND/OR
Resource
Therefore™ Server Service
Click here to add a dependency
Insert
Delete
Therefore™ Server Service
OK
Cancel
Apply

6. Finally, the configuration should look similar to the screenshot below.



The Therefore™ services startup type will be automatically changed to “Manual” on both cluster nodes:



Screenshot from the Windows Services console.

6.3 Windows Server 2016

The Therefore™ Server installation process (on a failover cluster with two nodes) in Windows Server 2016 is the same as in Windows Server 2012 R2.