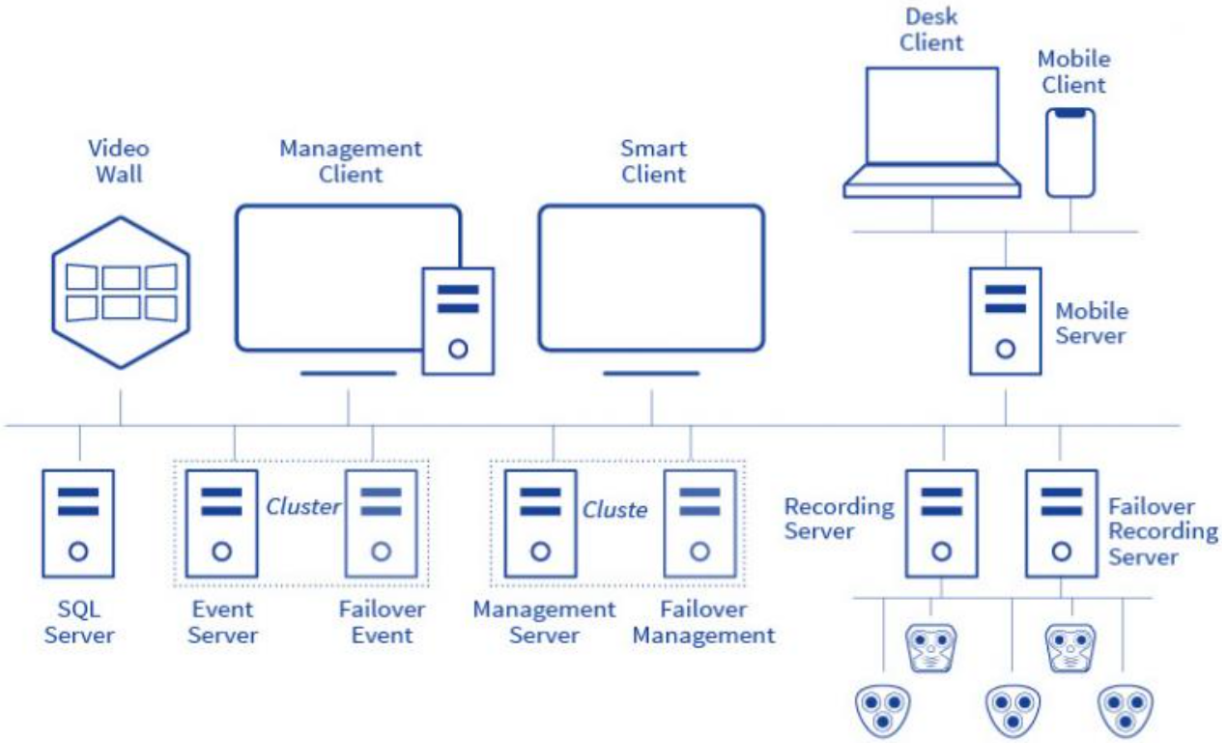


MOBOTIX HUB Management Server Failover

Table of Contents

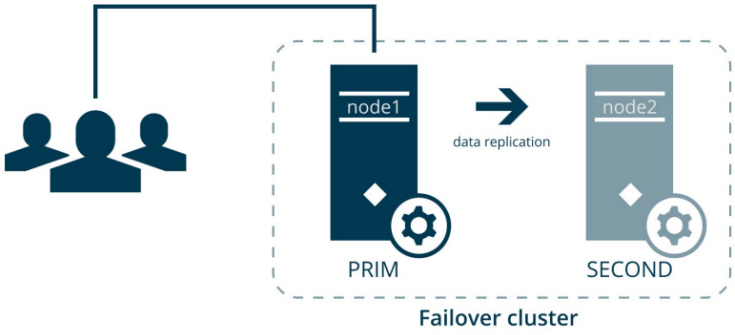
1 Management Server Failover Function

In a typical scenario, you install the following components on both nodes (primary and failover servers):

- HUB Management Server
- HUB Log Server
- HUB Event Server
- SQL Server

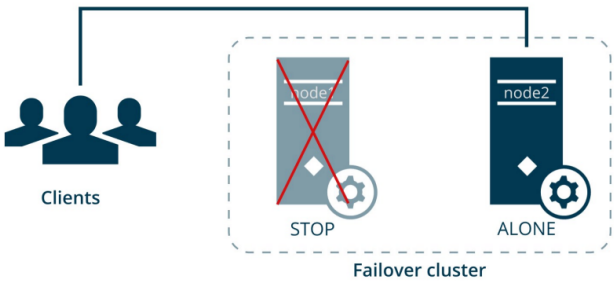
The failover steps in a typical scenario are:

1. The management server, log server, event server, and SQL server run on node 1 (in **PRIM** status). If an SQL server has been installed on both nodes, the management server failover duplicates the databases on node 2 (in **SECOND** status).

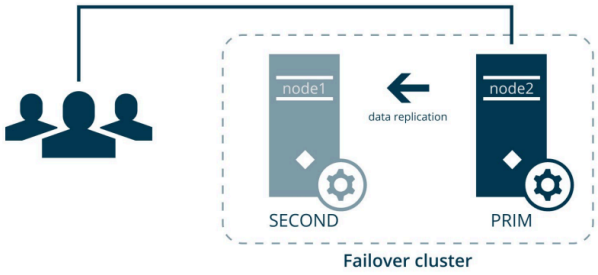


Availability is checked every second!

2. If the management server on node 1 is unavailable for 30 seconds, node 2 takes over.
   The failover transition time depends on the start time of the management server service.
   1. Node 2 is set to **ALONE** status and data replication stops.
   2. The management server, event server, log server, and SQL server start on Node 2.
   3. The management server, event server and log server now store their data on the SQL server on Node 2.

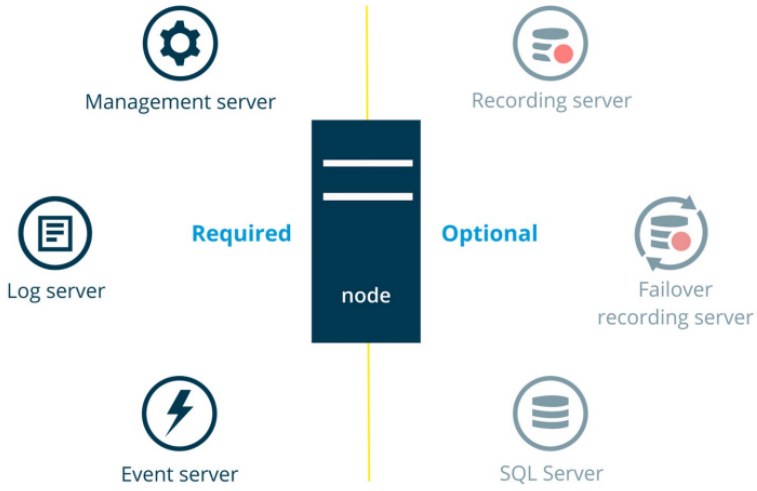


3. You have identified and solved the problem. Now start Node 1 via the failover web console. The data that changed within the database during the downtime is replicated on Node 1.



The MOBOTIX HUB services continue to run in primary mode (**PRIM**) on node 2 after a failover, and the data is replicated to node 1.
If you want to return the primary and secondary assignments to their original state, you can perform a swap.

Required and optional MOBOTIX HUB components



At least the following components must be installed on Node 2, which serves as the failover server.

- Management server
- Event server
- Log server

The following components can also be installed on Node 2:

SQL Server

You can use internal or external SQL Server instances.

To use an internal SQL Server instance, you must install SQL Server on both nodes.

When using an internal SQL Server instance, MOBOTIX HUB Management Server Failover replicates the contents of the SQL Server databases and triggers a failover if the SQL Server instance fails.

If you have a large VMS installation, you can use an external SQL Server instance and exclude SQL Server from the failover cluster.

In this scenario, the MOBOTIX HUB Management Server Failover solution does not monitor and replicate the SQL Server databases.

MOBOTIX recommends regular backups of the SQL Server databases as a disaster recovery measure.

Recording Server

You can install a recording server on one or both nodes.

MOBOTIX HUB Management Server Failover does not provide failover protection for the recording server.

You must configure the failover recording server yourself.

Failover Recording Server

You can install a failover recording server on one or both nodes.

If you have limited resources, you can use the failover cluster nodes to host a recording server and a failover recording server.

You configure the failover recording server using the MOBOTIX HUB Management Client.

For reasons of system stability, MOBOTIX recommends installing the recording server on node 2 and the failover recording server on node 1.

Requirements for operating a recording server or a failover recording server on the cluster nodes

Installing the recording server or failover recording server on the cluster nodes requires additional steps.
You can install a recording server or failover recording server on one or both nodes. For example, you can install the following:

- A recording server on node 1.
- A recording server on node 1 and a failover recording server on node 2.
- A recording server on Node 1 and Node 2.

Before you configure failover for the management server, consider the following:

- **Environment** – The nodes can run in a domain or workgroup environment.
- **Failover recording server setup** – If you configure a failover recording server on one of the nodes, you must use it in a hot standby configuration.
- **Encryption** (optional) – To encrypt the connection between the VMS components, you must install the SSL certificate for the recording server on the recording server. You must then enable encryption for the recording server using the recording server's server configurator.
- **Services** – The MOBOTIX HUB Recording Server service and the configuration wizard for MOBOTIX HUB Management Server Failover require port 9001 to function.
  To avoid conflicts, you must either use a different port for the MOBOTIX HUB Recording Server service or stop the service when you configure or remove it from the failover cluster.

2 Requirements

A few preparatory steps are required to use MOBOTIX HUB Management Server Failover.

2.1 Operating system

Install the same operating system on Node 1 and Node 2.

Supported operating systems (from MOBOTIX HUB 2025R2)

Microsoft® Windows® 10 IoT Enterprise LTSB (Long-Term Servicing Branch) 2016
Microsoft® Windows® 11 Pro
Microsoft® Windows® 11 Enterprise
Microsoft® Windows® 11 IoT Enterprise LTSC 2024
Microsoft® Windows® Server 2016: Essentials, Standard and Datacenter
Microsoft® Windows® Server 2019: Essentials, Standard, and Datacenter
Microsoft® Windows® Server 2022: Essentials, Standard, and Datacenter
Microsoft® Windows® Server 2025: Essentials, Standard, and Datacenter

2.2 Network

The servers (Node 1 and Node 2) should be on the same subnet and have a static IPv4 address or be reserved via the DHCP server.

You need a total of 3 IPv4 addresses

1. Node 1
2. Node 2
3. Virtual IP address (communication between Node 1 and Node 2, connection address of the clients)

In addition, the use of a DNS server is recommended to ensure name resolution of the FQDNs!

2.3 Domain or workgroup environment

2.3.1 Domain

Use the same Active Directory domain user on both nodes! (Installation user)

If the servers are located in different domains, these two domains must classify each other as trustworthy to ensure connection and communication!

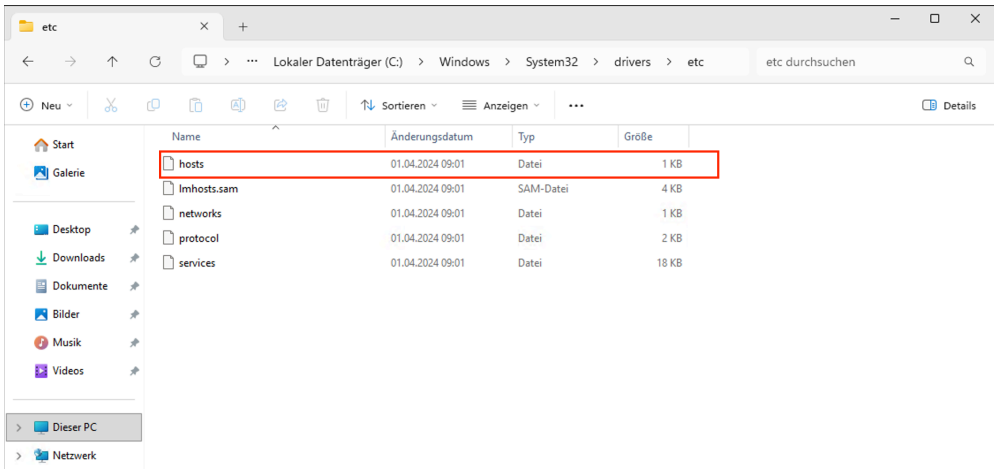
2.3.2 Workgroup

Prerequisite	Description
Workgroup membership	Add Node 1 and Node 2 to the same workgroup
Hostname mapping (if no DNS server is available)	Map the hostnames of the nodes to their IP addresses (see *1)
Windows group	Add the administrators group to the administrators role on both nodes within the MOBOTIX HUB Management Client. ManagementClient – Roles – Administrators Add PREDEFINED/Administrators to the administrator role (see *2).
Basic User	To ensure that you can always log in as an administrator, add a basic user to the administrator role of the MOBOTIX HUB (see *3).

*1: Hostname mapping

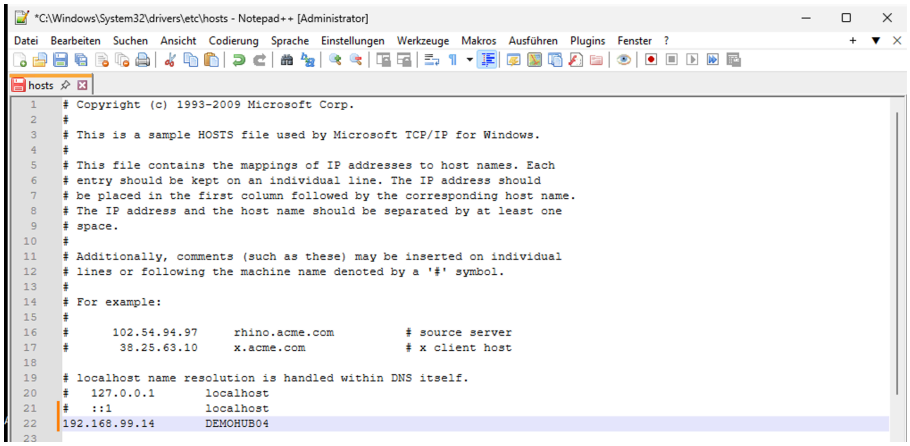
If you do not have a DNS server available to resolve the host names of Node 1 and Node 2, you must manually assign their IP addresses to the host names.

1. On Node 1, go to **C:\Windows\System32\drivers\etc** and open the hosts file as an administrator using a text editor such as Notepad.



2. In the section where the local host name is resolved within the DNS itself, enter the IP address of Node 2 and its host name.

Add the IP address of Node 2 and its host name in a new line.



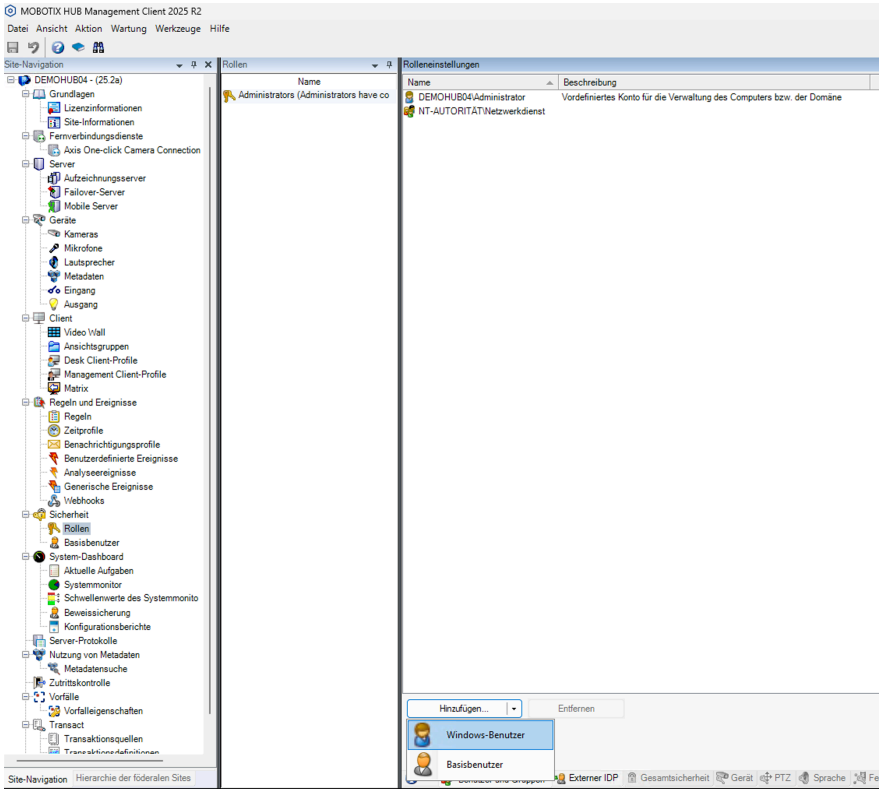
Depending on the system, it may be necessary to restart the server!

Repeat this step on Node 2 as well.

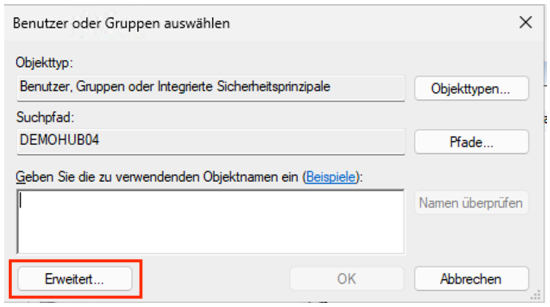
*2: Windows group

On **Node 1** and **Node 2**, add the "Administrators" user group to the Administrators role.

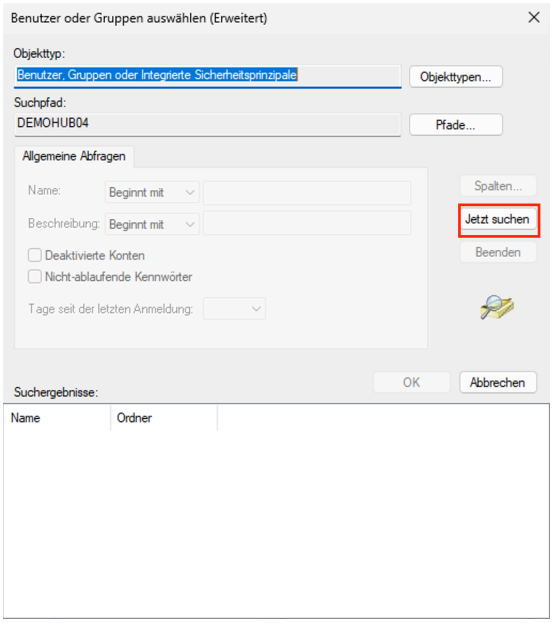
In the Administrators role, click **Users & Groups** and select "**Windows Users**."



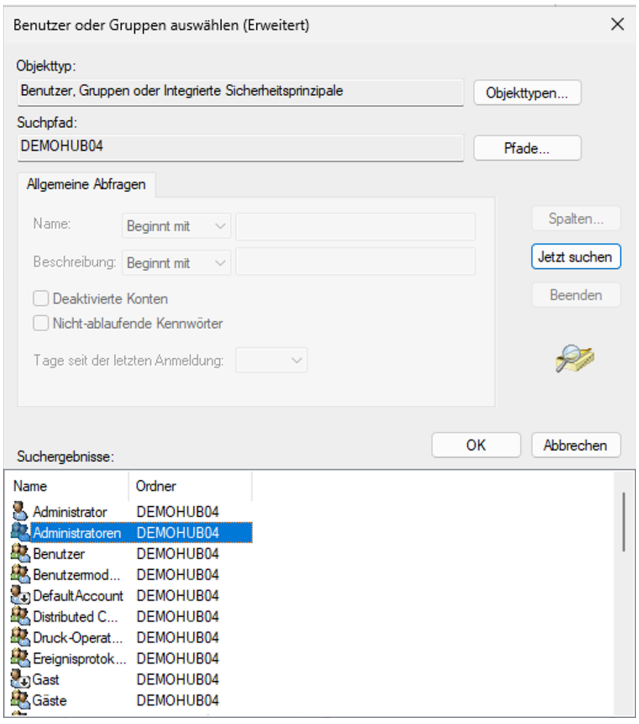
Click on **"Advanced."**



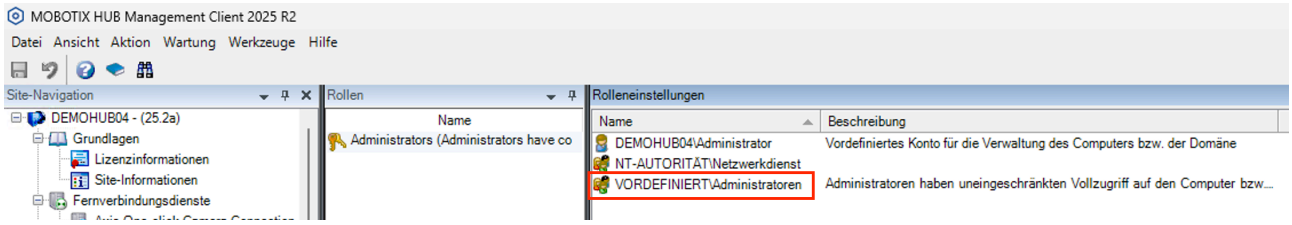
Now click on **"Search Now."**



Select the Administrators group and click on "**OK**."



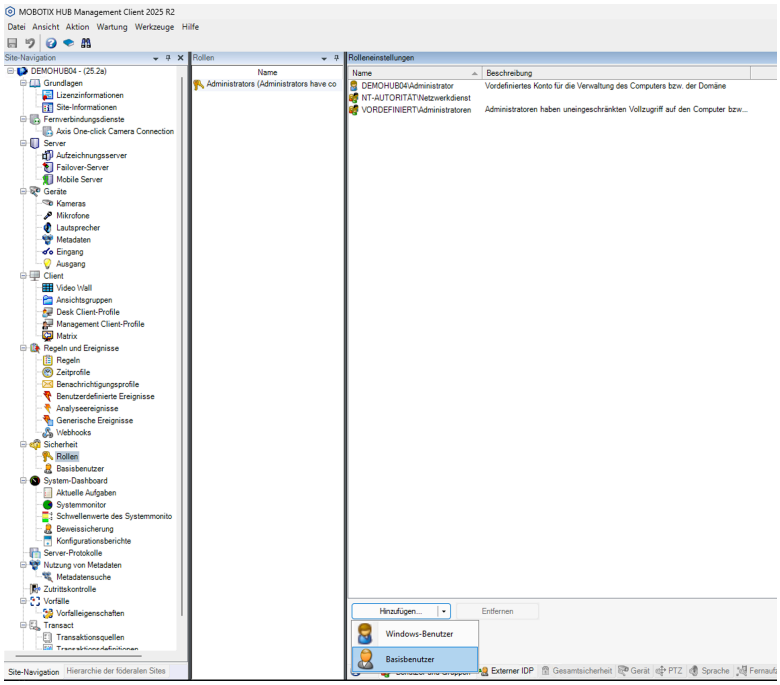
The Administrators group has now been successfully added to the administrator role of the MOBOTIX HUB.



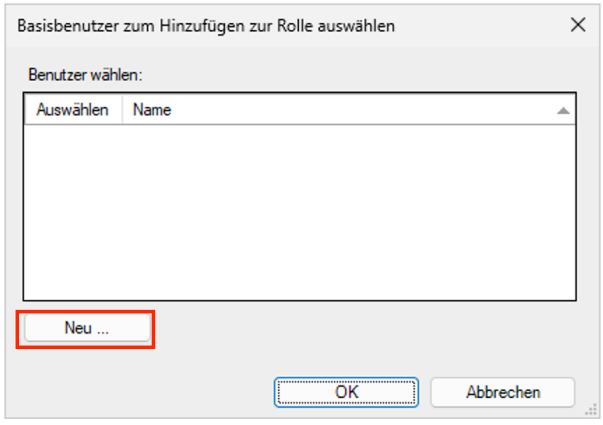
*3: Basic user

Add a basic user to the administrator role on **Node 1** and **Node 2**.
The user name and password must be identical on both nodes!

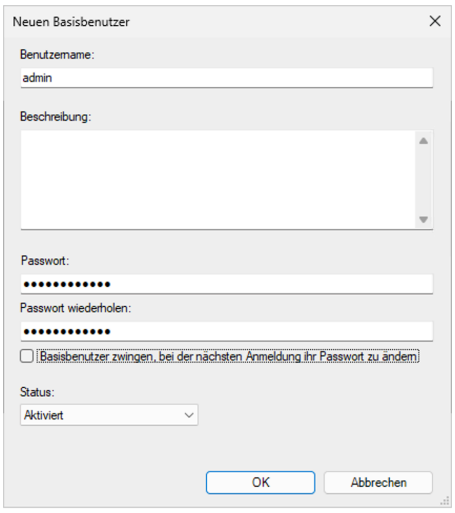
In the administrator role, click on **Users & Groups** and select "Basic User."



Click on "**New ...**"

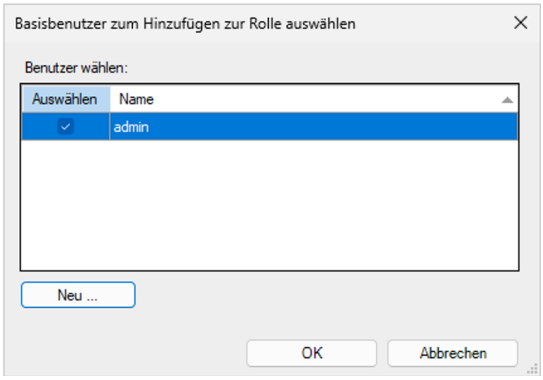


Assign a username and password for this user.
Uncheck
"Force basic user to change password at next login."

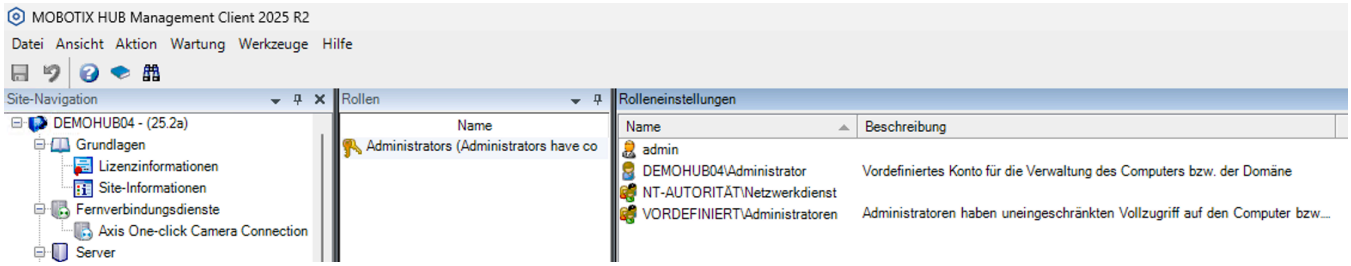


Then click on "**OK**."

The user should now be selected. Then click on "**OK**."



The basic user you just created is now part of the administrator role of the MOBOTIX HUB.



2.3.3 SQL Server

When using an internal SQL Server instance, the MOBOTIX HUB Management Server Failover replicates the contents of the SQL Server databases and triggers a failover if the SQL Server instance fails.

For large VMS installations, you can connect the Management Server to an external SQL Server instance.

Supported SQL Server versions (from MOBOTIX HUB 2025R2)

Microsoft SQL Server® 2016
Microsoft SQL Server® 2017
Microsoft SQL Server® 2019
Microsoft SQL Server® 2022

Internal SQL Server instance

You can use internal or external SQL Server instances.

To use an internal SQL Server instance, you must install SQL Server on both nodes.

When using an internal SQL Server instance, MOBOTIX HUB Management Server Failover replicates the contents of the SQL Server databases and triggers a failover if the SQL Server instance fails.

External SQL Server instance

If you have a large VMS installation, you can use an external SQL Server instance and exclude SQL Server from the failover cluster.

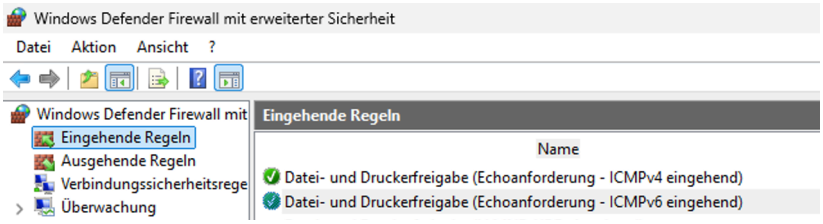
In this scenario, the MOBOTIX HUB Management Server Failover solution does not monitor and replicate the SQL Server databases.

MOBOTIX recommends regular backups of the SQL Server databases as a disaster recovery measure.

2.4 Additional requirements

System time: Make sure that the servers (Node 1 and Node 2) are synchronized. The use of an NTP server is recommended for all existing servers and cameras.
Information: Time differences of as little as 5 seconds can cause problems with communication between the servers and lead to problems with the connection to the cameras.

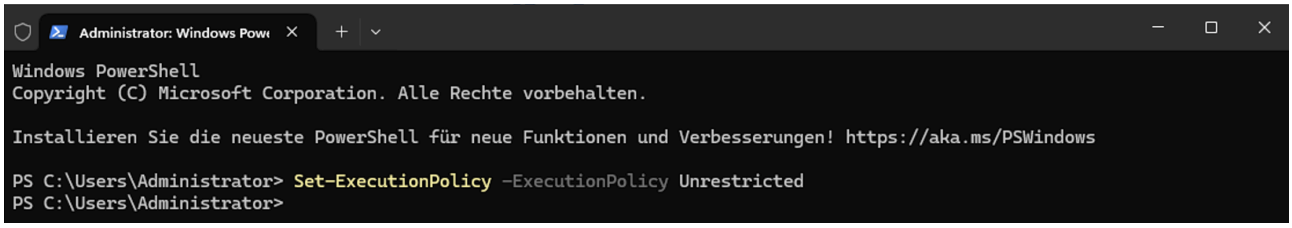
ICMP traffic: Allow incoming ICMP traffic through all existing firewalls.



PowerShell execution policy: Set the PowerShell execution policy to **Unrestricted**. Management Server Failover uses PowerShell scripts to stop or start services.

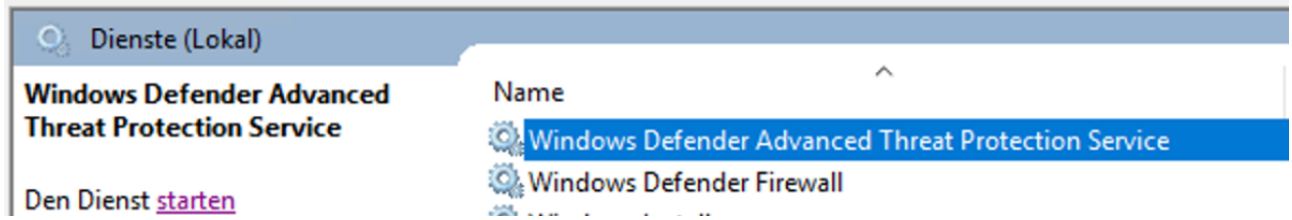
Start PowerShell as an administrator and enter the following command:

Set-ExecutionPolicy -ExecutionPolicy Unrestricted



This step must be performed on both nodes!

Windows Defender Advanced Threat Protection Service: Disable the Windows Defender Advanced Threat Protection service on both nodes!

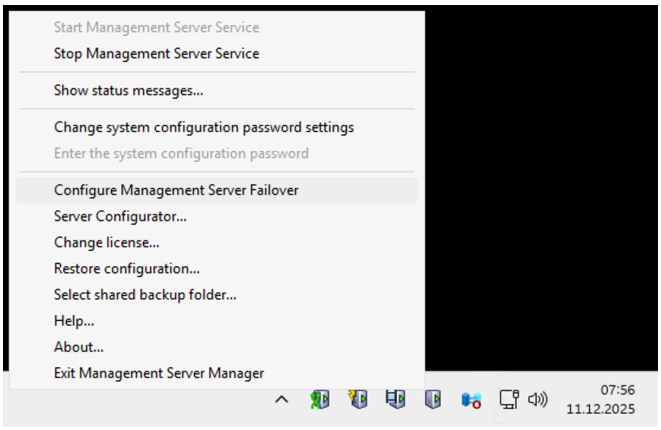


3 Configuration Management Server Failover

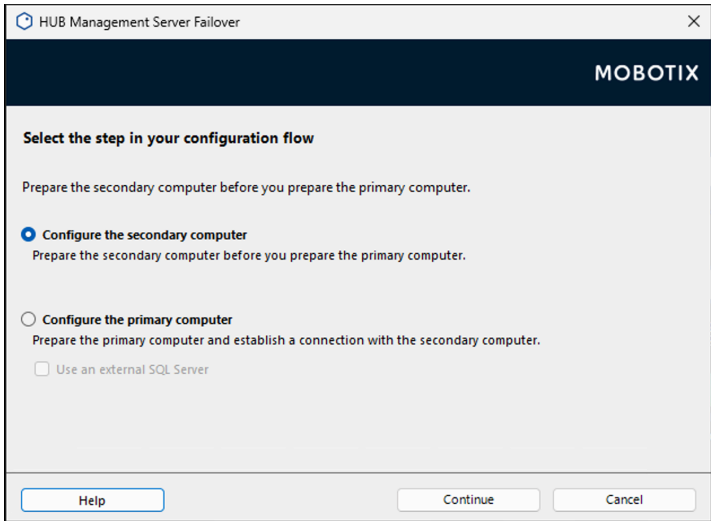
3.1 Preparation Node 2 (secondary failover server)

Once the MOBOTIX HUB has been successfully installed, the configuration of the management server failover on node 2 (secondary) is started.

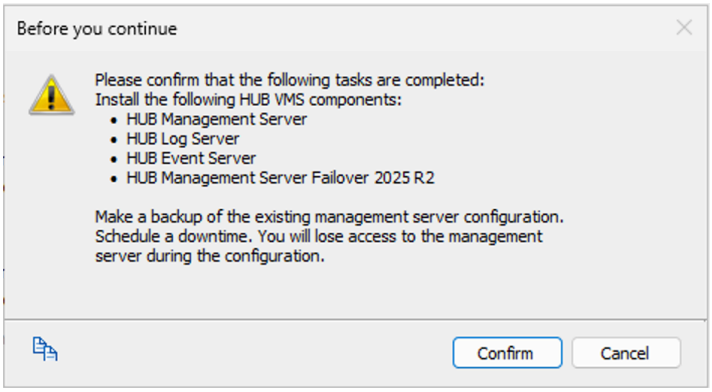
To do this, right-click on the Management Server taskbar icon -> **Configure Management Server Failover**



Now select "**Configure the secondary computer**"

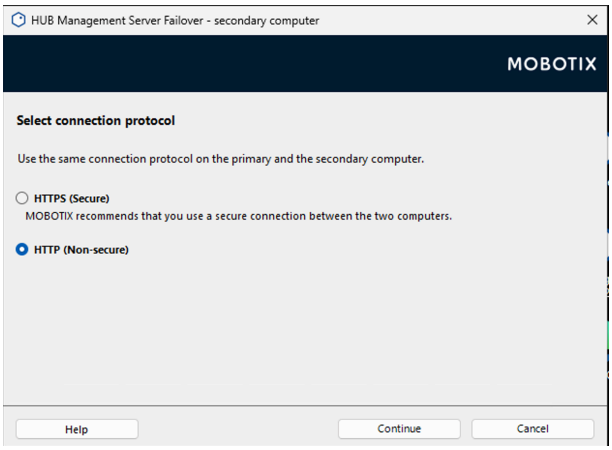


Confirm the following message with "**Confirm**."



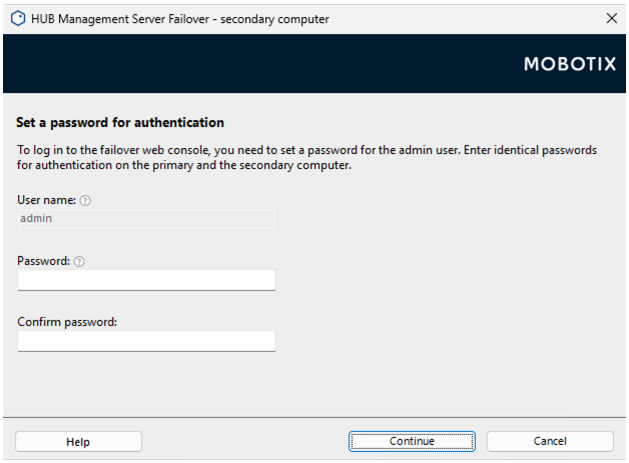
In this example, we are within a workgroup and are not using server certificates!

If you are not using server certificates, select "**HTTP (Non-secure)**".
If you are using server certificates, select "**HTTPS (Secure)**".

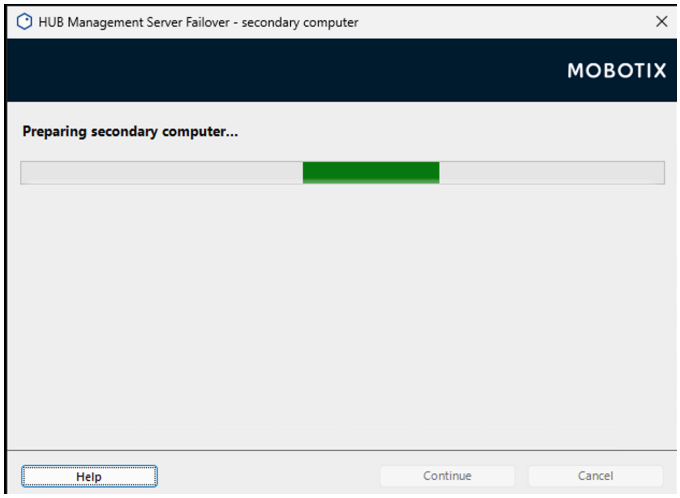


Click "**Continue**."

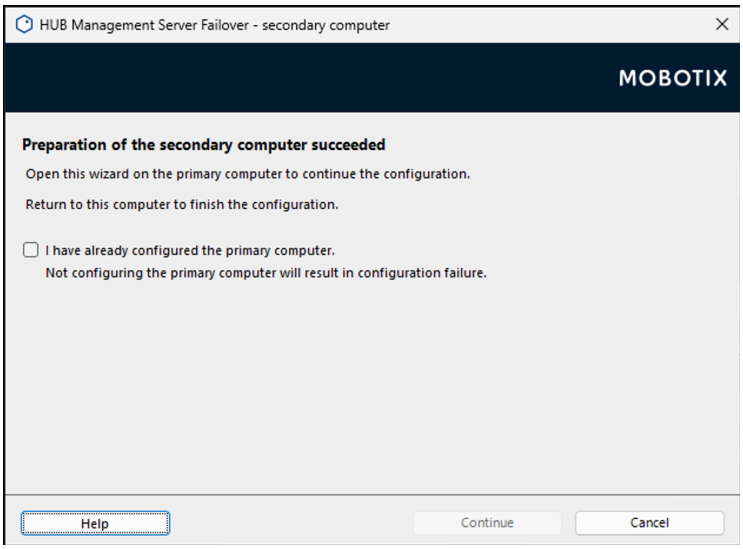
Now assign a password for the Management Server Failover WebLogin.
The password must be identical on both nodes!



The secondary failover server is now set up



Once the secondary failover server has been prepared, the configuration must be continued on **Node 1**.
Leave this window open on **Node 2** for now and switch to **Node 1 (primary).**

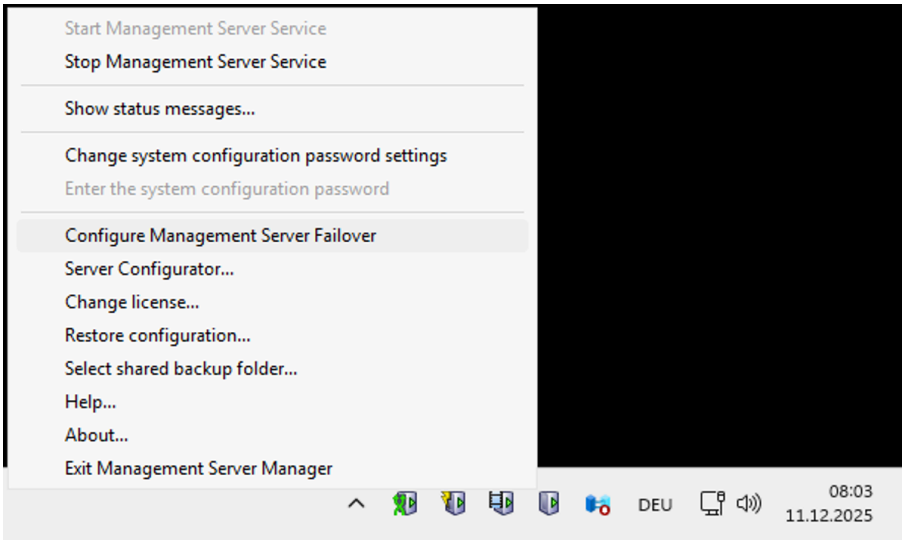


3.2 Configuration Node 1 (Primary Failover Server)

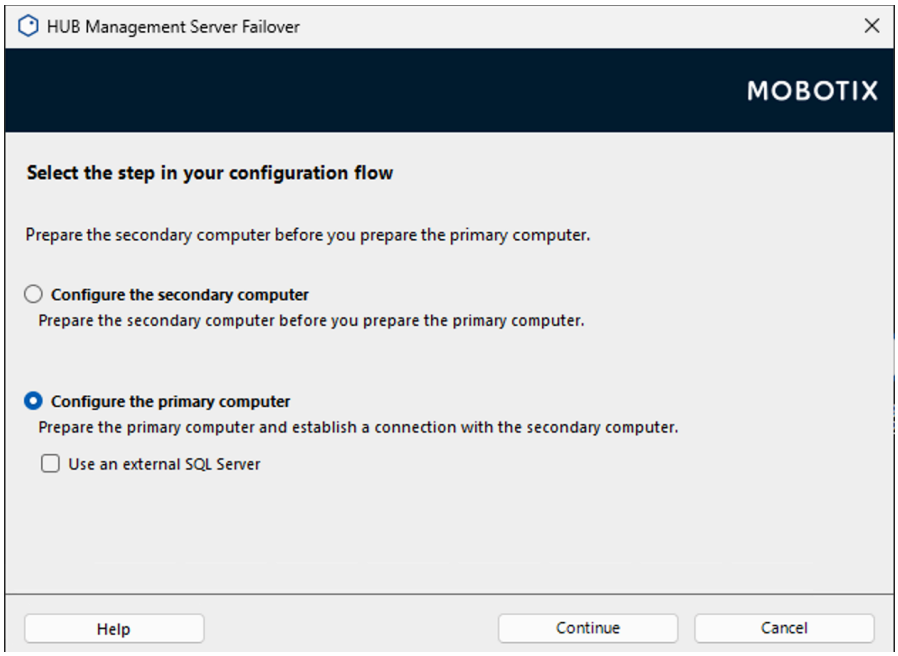
Once the secondary failover server (Node 2) has been prepared, the primary failover server (Node 1) must now be configured.

To do this, switch to your primary failover server (Node 1).

To do this, **right-click** on the Management Server taskbar icon -> **Configure Management Server Failover.**

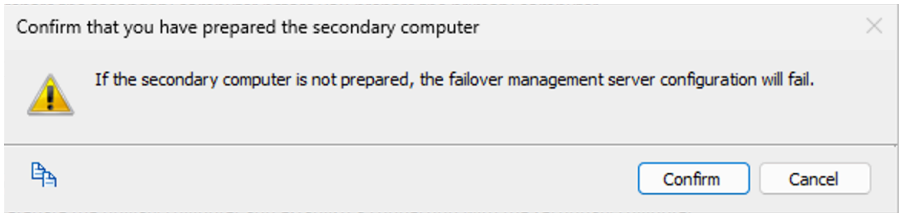


Now select "**Configure the primary computer**."
If you are using an external SQL Server, check the box next to "**Use an external SQL Server.**"



Now click on "**Continue**."

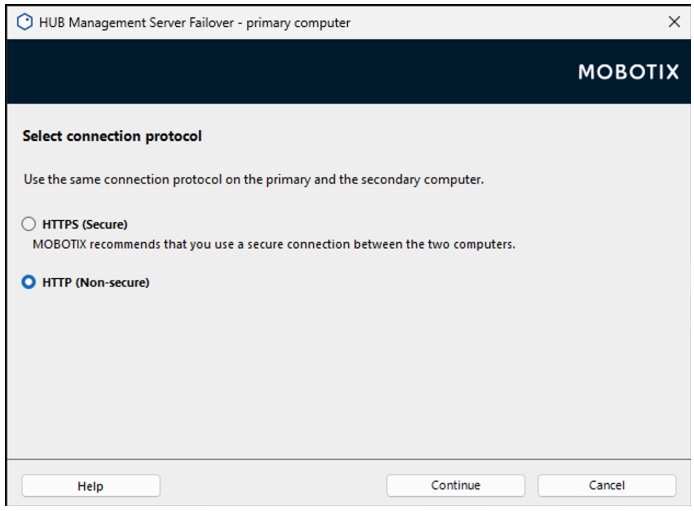
Confirm that you have prepared the secondary failover server by clicking "**Confirm**."



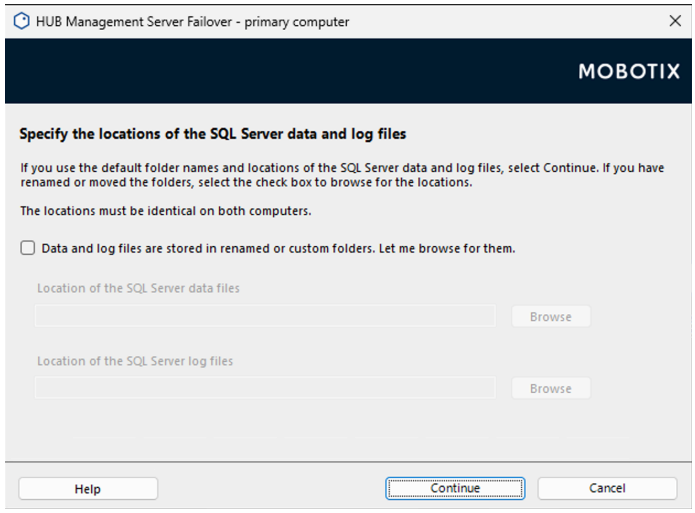
In this example, we are within a workgroup and are not using server certificates!

If you are not using server certificates, select "**HTTP (Non-secure)**".
If you are using server certificates, select "**HTTPS (Secure)**".

This setting must be identical to the configuration of Node 2!



Now define the storage location for the SQL databases and log files.
If you have performed a standard installation of SQL Server, you do not need to adjust anything in this menu, unless you have changed the storage locations for SQL databases and/or logs, or the SQL installation was not performed using the default path.

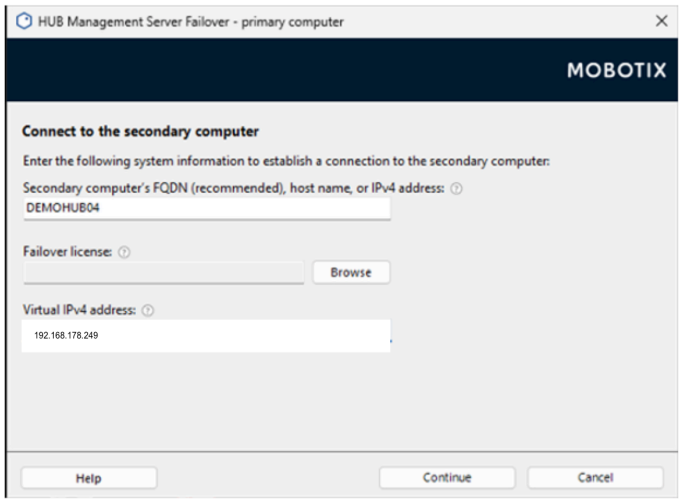


Click on "**Continue**."

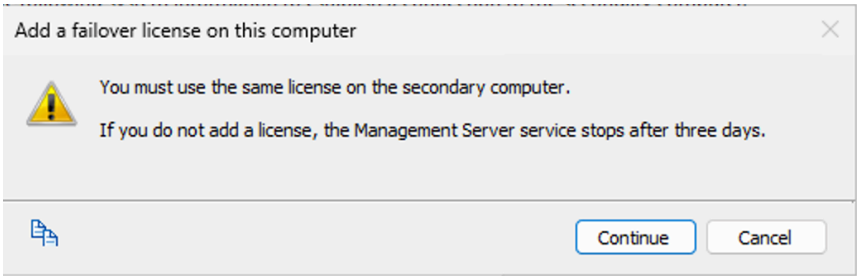
Now enter the address of the secondary failover server (Node 2).
The FQDN is recommended for this! The host name or IP address can also be used.

In addition, select the license file you received.
If you do not use a license file, the management server failover will stop after 3 days!

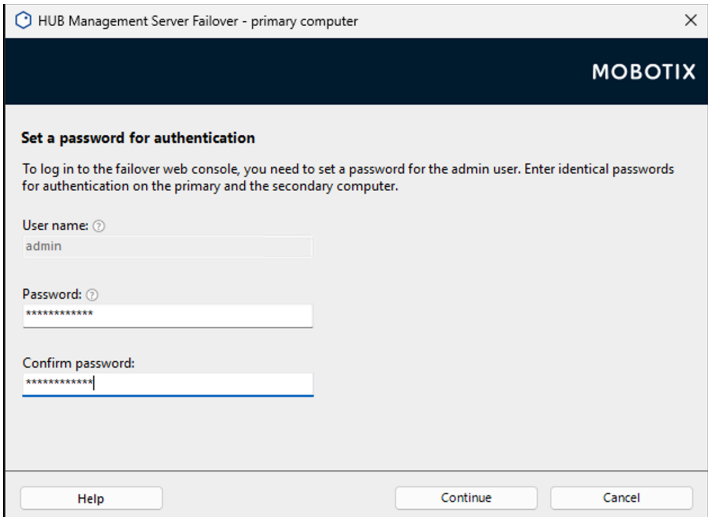
Enter a free IP address located in the same network under "**Virtual IPv4 address**"!
This virtual IP address will subsequently be used as the management server address!



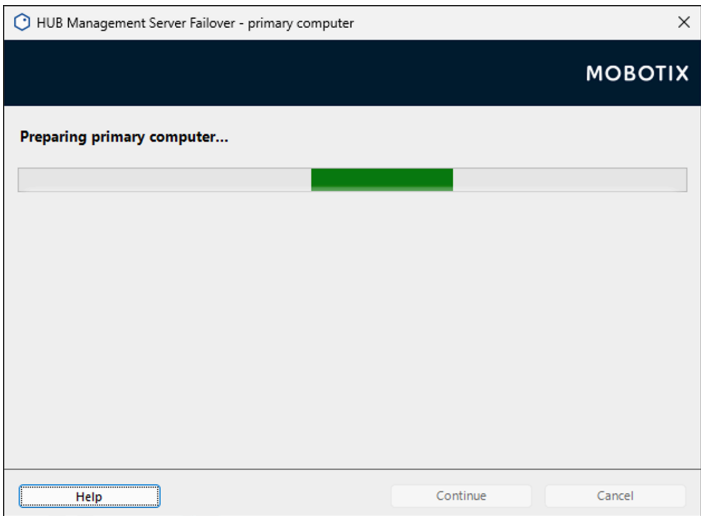
Confirm with "Continue" that you are using the same license on both nodes!



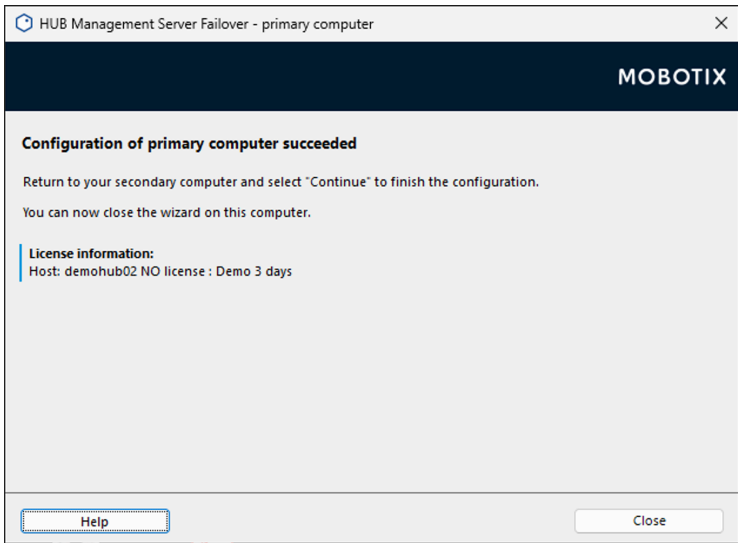
Now assign the same password as before on Node 2 for the Management Server Failover WebLogin.



The primary failover server (Node 1) is now configured.



After a short time, the configuration of the primary failover server is complete and you will receive the following message.

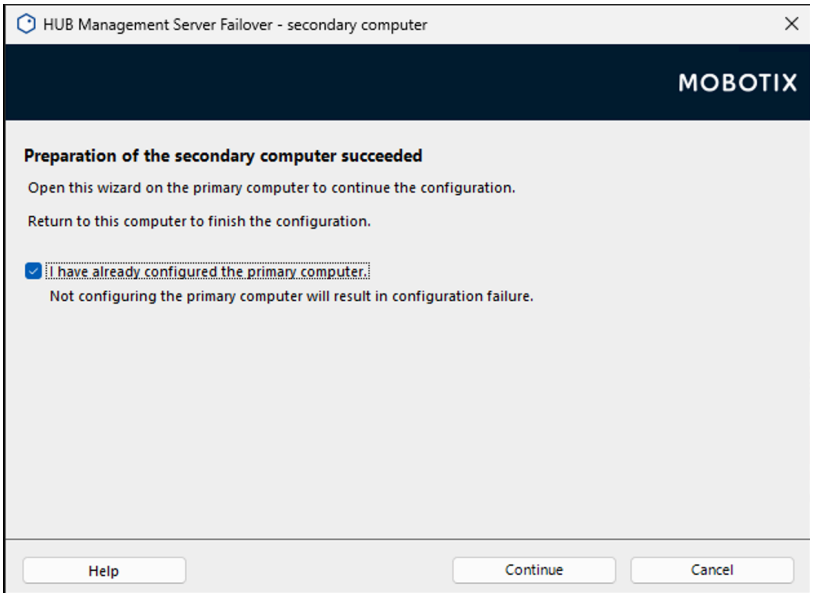


Now click "**Close.**"

Now switch back to the **secondary failover server (Node 2)**.

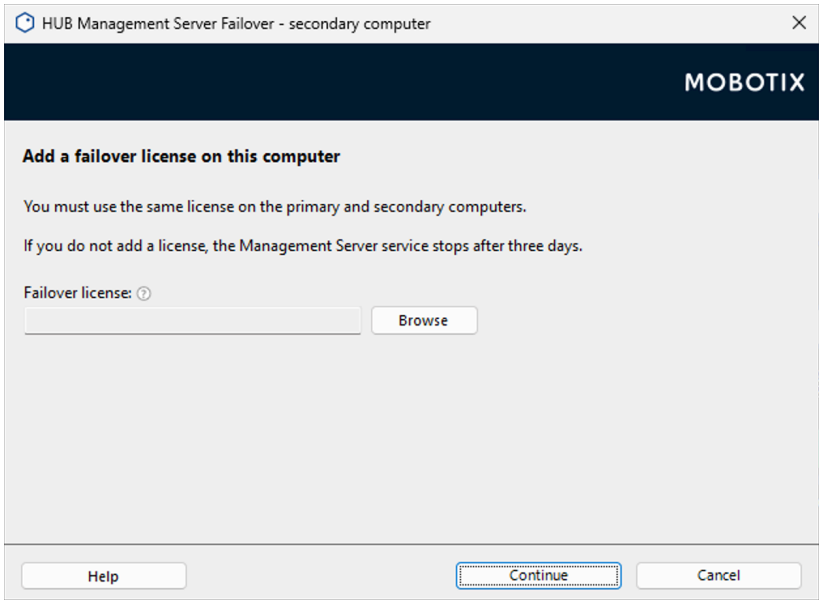
3.3 Completing the configuration

Once you are back on Node 2, you can check the box
"**I have already configured the primary computer**."



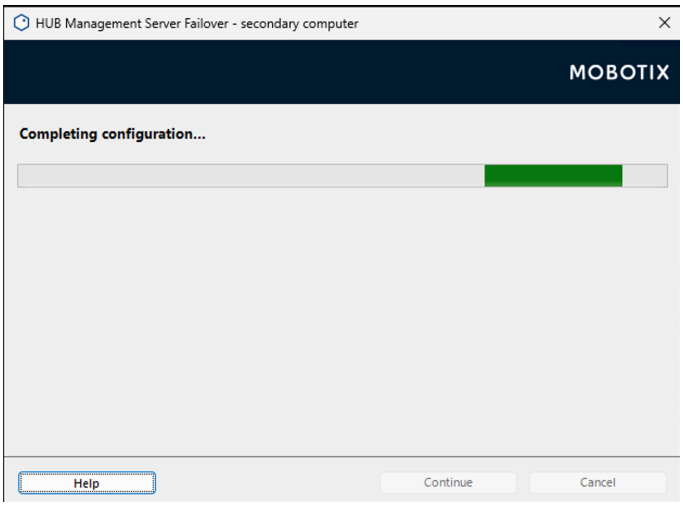
Click on "**Continue**."

Now select the same license file as on the primary failover server (node 1).
If you do not select anything here, as on Node 1, the management server failover will terminate after 3 days!

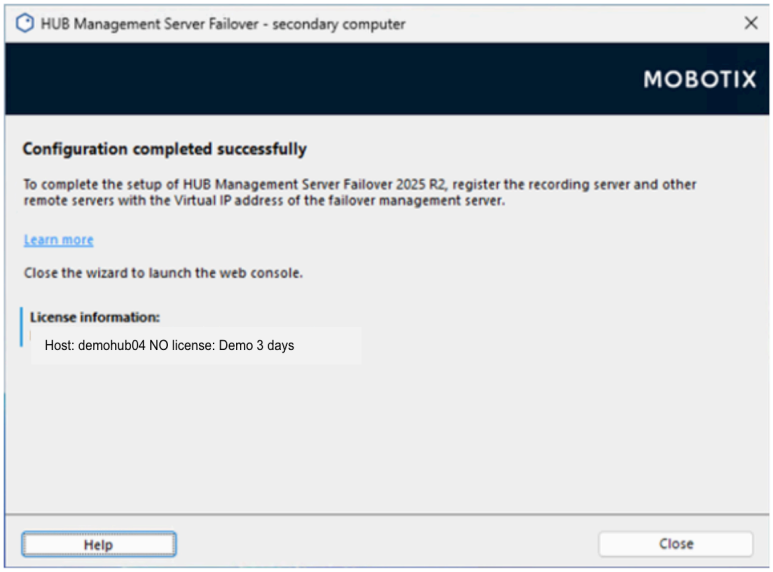


Click on "**Continue**."

The configuration is now complete.



After a short time, the configuration of the management server failover will be successfully completed.



Click on "**Close.**"

The MOBOTIX HUB services are set to "Automatic" without Management Server Failover configuration.
Since the management server failover now determines when the services are started and stopped, they are set to "Manual" after installation. (Do not change this!)

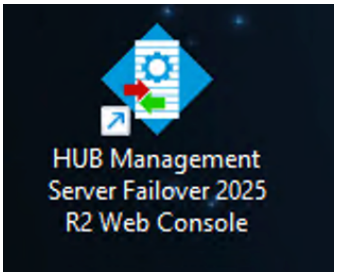
MOBOTIX HUB Data Collector Server	Collect perfor...	Manuell	Netzwerkdienst
MOBOTIX HUB Event Server	The server for ...	Manuell	Netzwerkdienst
MOBOTIX HUB Log Server	Provides the n...	Manuell	Netzwerkdienst
MOBOTIX HUB Management Server	Manages com...	Manuell	Netzwerkdienst

4 Management Server Failover Web Console

After installation, you will see a new icon on your desktop

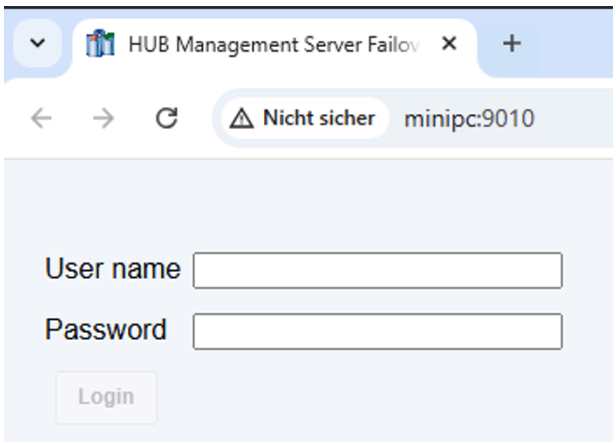
"**HUB Management Server Failover 2025R2 Web Console**".

Start the application.

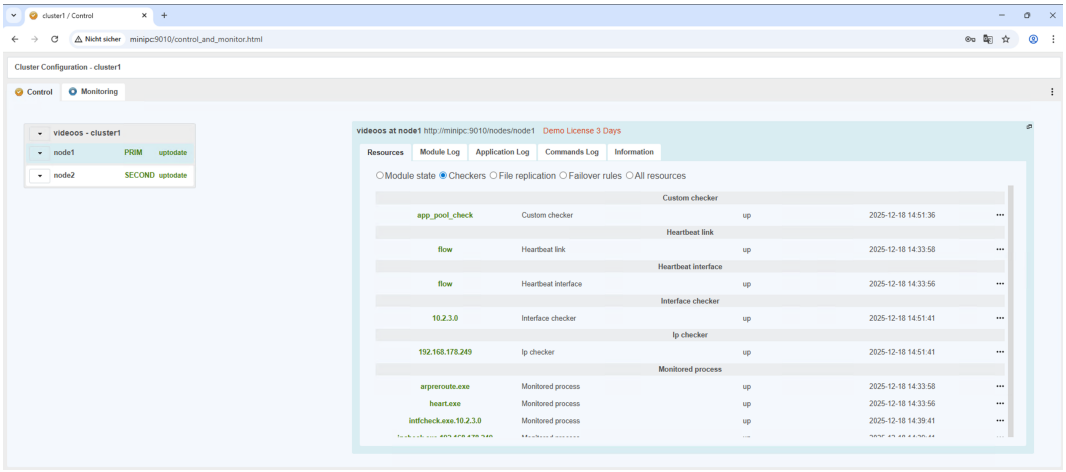


The Management Server Failover Web Console can be accessed at the server's URL, including port 9010.

Now enter the following user data:
User name: admin
Password: The password you assigned during installation!

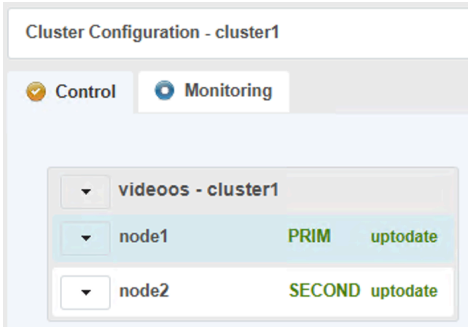


You will now see an overview page of the Management Server Failover.

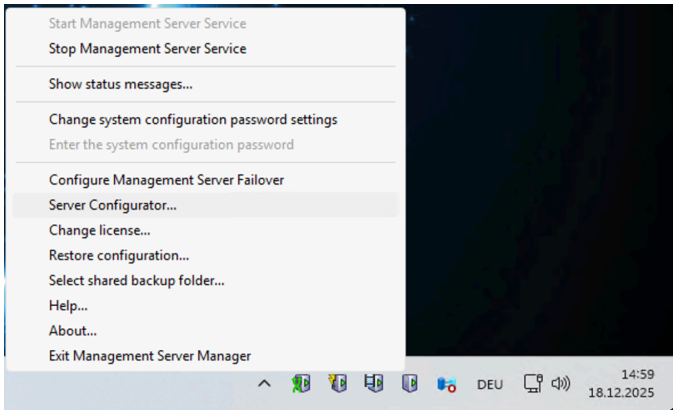


At the top left, you will see the current status of the two nodes and their status.

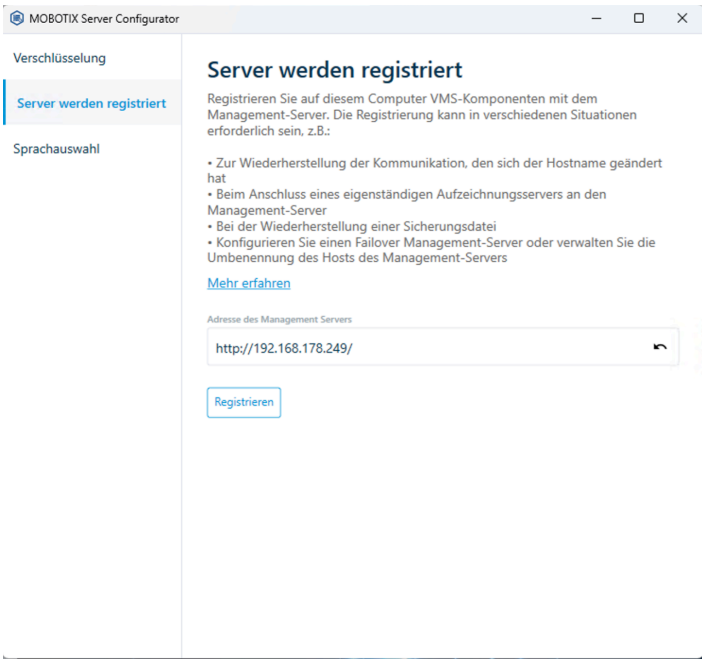
Node 1 is defined as Primary (**PRIM**) and the configuration (database) is **up to** date
Node 2 is defined as secondary (SECOND) and the configuration (database) is **up to** date



If you now click on the Management Server taskbar icon and then on "**Server Configurator...**", you can view the new Management Server address (**virtual IP address**).



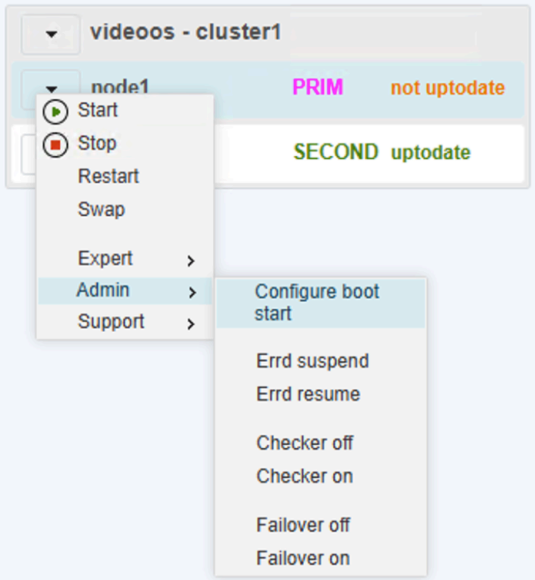
Under "**Servers are being registered**," you will now see that the new management server address is the virtual IP address you specified.



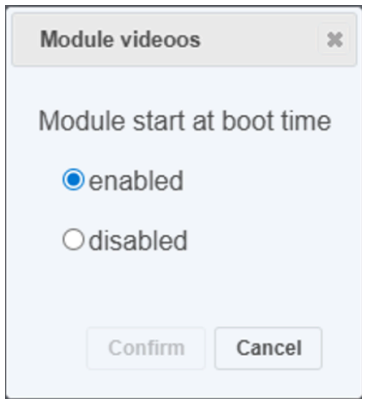
5 Activate module system start

You have the option of starting the management server failover automatically.

To do this, click on **Node – Admin – Configure boot start**



Now select "**enabled**" and then click on **"Confirm**."

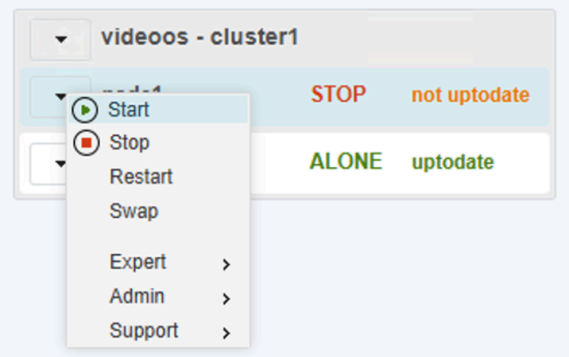


The management server failover will now start automatically after a system restart.

6 Node start after failover

After a failover, you must manually start the failed node.

To do this, click on the node that failed and then click "**Start**."



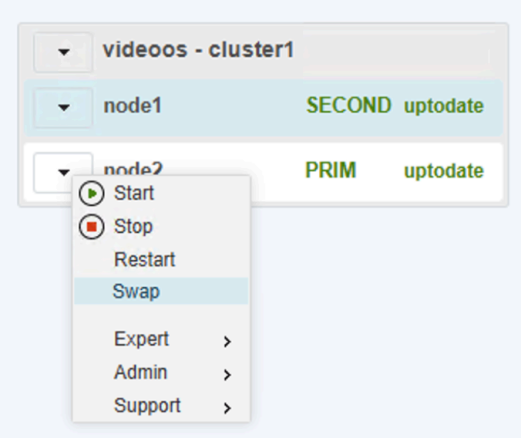
Since the MOBOTIX HUB services are set to "**manual**," the respective node must also be started so that all MOBOTIX HUB services start again.

6.1 Node swap to original state

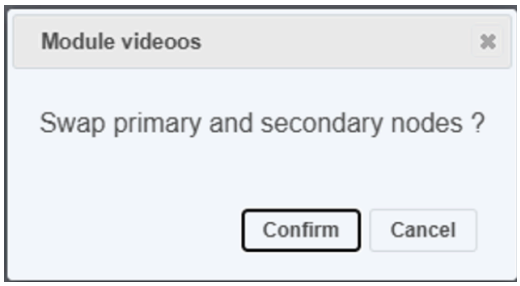
IMPORTANT: After a failover has taken place, the failed server is assigned "SECOND" to prevent another short failure.

However, you can manually change the assignment back to its original state.

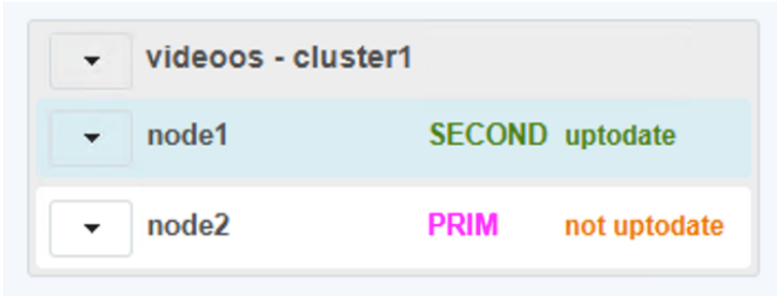
To do this, click on **Node 2** and then on "**SWAP**."



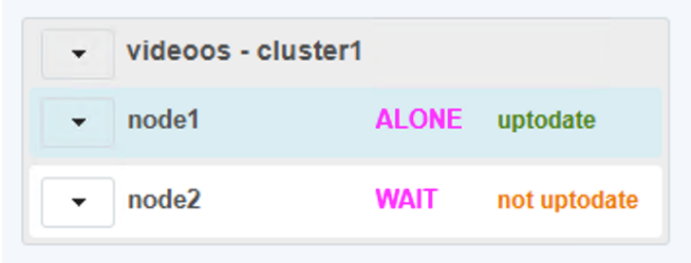
Now click on "**Confirm**."



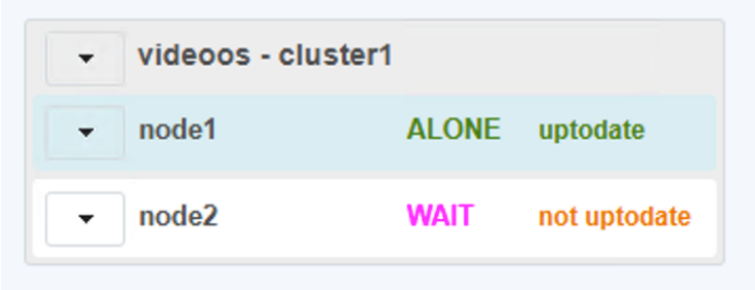
The current **primary server (Node 2)** is now shut down.



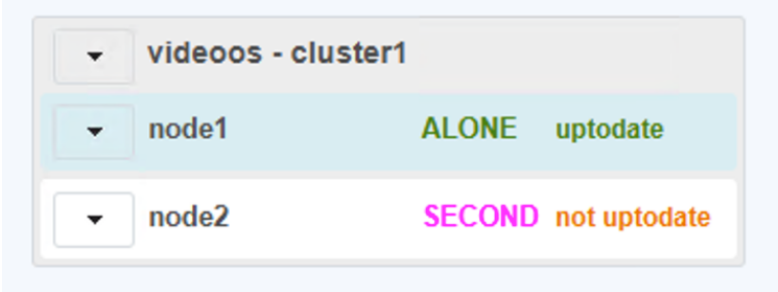
Node 2 is now assigned the status "**WAIT**" and **Node 1** "**ALONE**."



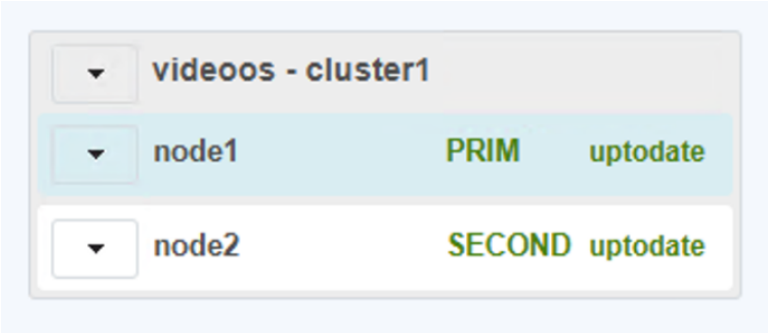
After the swap has been performed, **Node 1** will receive the status "**ALONE**."



Node 2 is now declared as **the secondary server** and receives the status "**SECOND**."



Once the swap is complete, the primary and secondary assignments will be back to how they were during the initial setup!

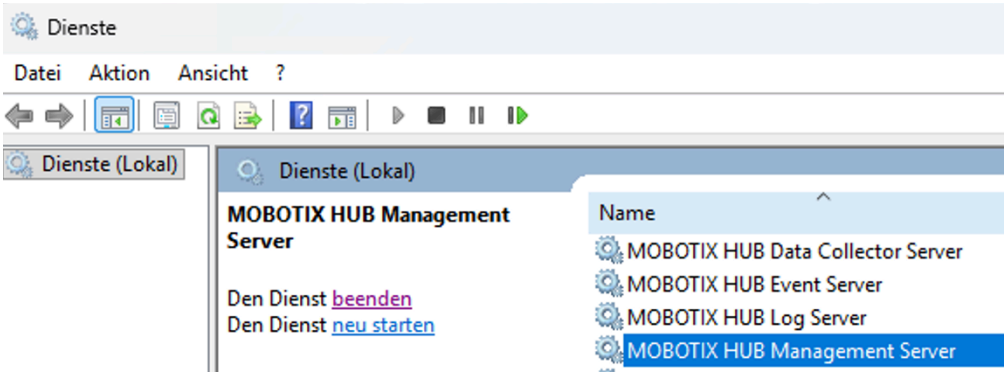


7 Function test

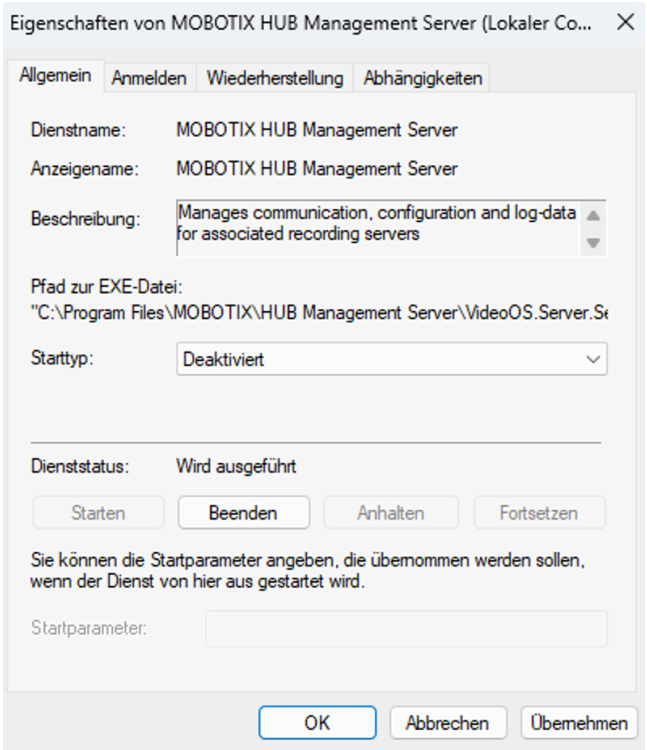
7.1 Deactivation of the management server service

To test the function, the management server service can be deactivated so that it can no longer be started and the failover takes effect.

To do this, first stop the management server service on Node 1.



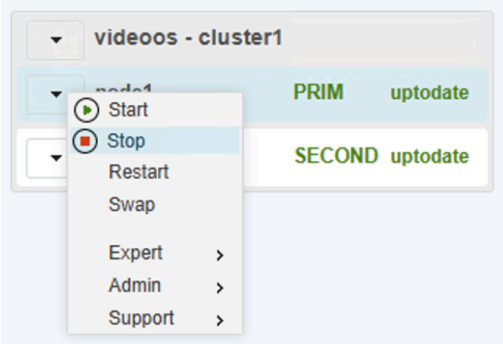
Then set the service to "Disabled."



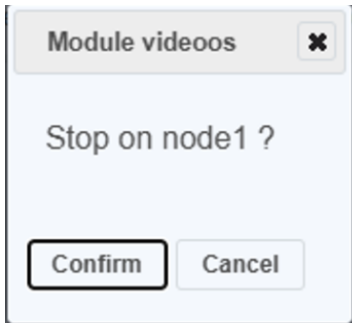
After a short time, Node 2 will take over the functions, as Node 1 is no longer available.

7.2 Stop MOBOTIX HUB services (stop node)

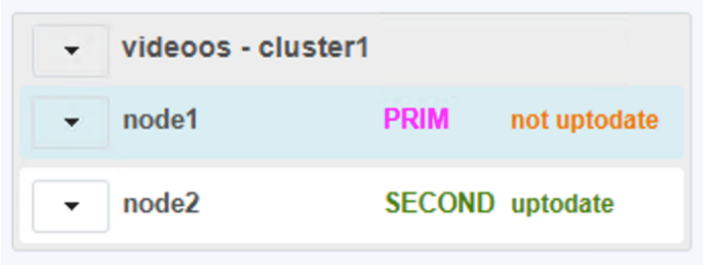
Within the Management Server Failover Web Console, you can click on Node 1 and then select "**Stop**."



Now click on "**Confirm.**"



The status of **Node 1** will now change from **green** to **magenta** and the database will be set to "**not uptodate**" status.

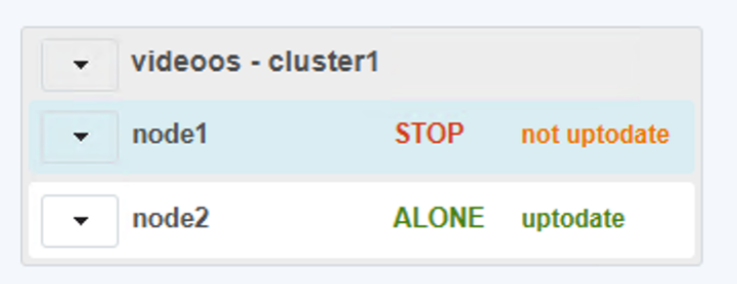


The MOBOTIX HUB services are now terminated!
The following services are terminated: Management Server, Event Server, Log Server, Data Collector

Once the services have been terminated, the status of **Node 1** is set to "**WAIT**."

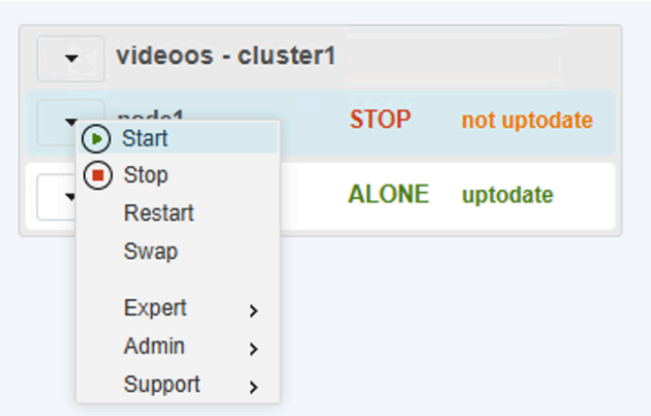
Node 2 is now set to "ALONE" status because **Node 1** is shut down or offline.

Node 1 is now completely stopped and receives the status "**STOP**".
Node 2 is now declared "ALONE" because Node 1 is offline.

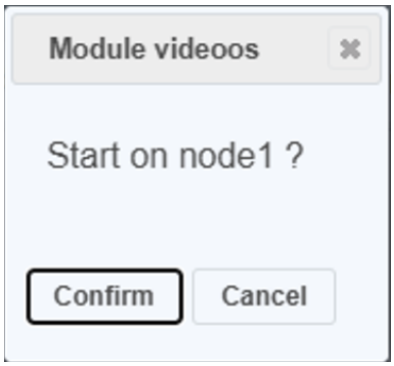


All MOBOTIX HUB services are now online on Node 2, which now takes over the tasks of the primary server.

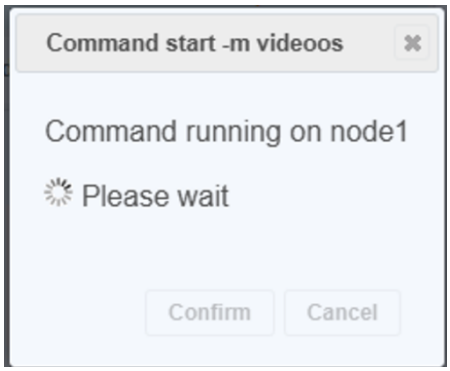
To restart **Node 1**, click on Node 1 and select "**Start**."



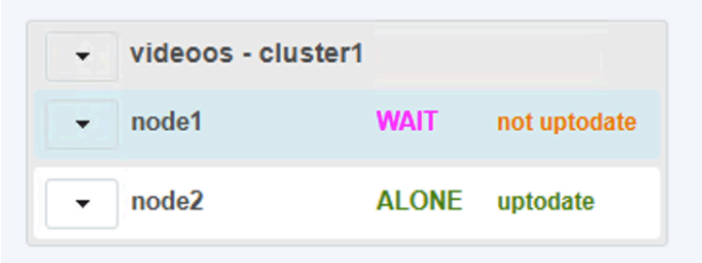
Click "Confirm" to start Node 1.



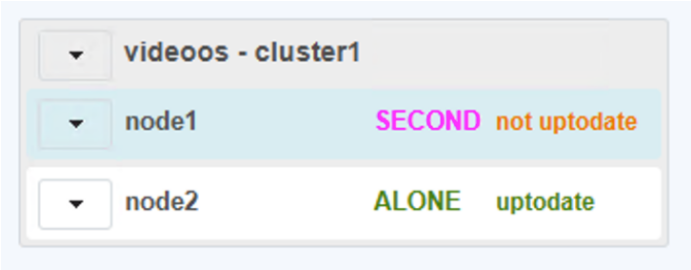
Node 1 will now be restarted.



Node 1 will now receive the status "**WAIT**."



In the next step, **Node 1** will receive the status "**SECOND**."



Once all MOBOTIX HUB services are back online on Node 1, the database is synchronized and Node 1 receives the status "SECOND" "**uptodate**."