Nedap Security Management

Setting up a SafeKit failover cluster with AEOS and SQL

Summary

1. About this document

This manual presents the step-by-step installation for configuring a SafeKit (Evidian) failover cluster with AEOS and SQL Server.

The SafeKit failover cluster functionality ensures high availability of one or more services as well as synchronous replication.

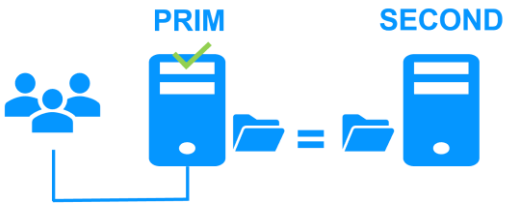
The software solution allows:

- Synchronous real-time file replication
- Automatic restart of an application upon failure
- Automatic reintegration of a server after failure

Block diagram of the SafeKit mirror cluster:

- Step 1. Real-time replication:

Server A (PRIM) runs the AEOS and SQL application. Users are connected to a virtual IP address. Only modifications made by the application within files are continuously replicated across the network.



Replication is synchronous without data loss in the event of a failure unlike asynchronous replication.

You just need to configure the names of the directories to be replicated in SafeKit. There are no prerequisites on disk organization. Directories can be located on the system disk.

- Step 2. Automatic failover:

When server A fails, SafeKit switches the virtual IP address to server B and automatically restarts the AEOS and SQL application. The application finds the updated replicated files on server B.

The application continues its execution on server B by locally modifying its files which are no longer replicated to server A.

The failover time is equal to the failure detection time (30 seconds by default) and the application restart time.

- Step 3. Reintegration after failure:

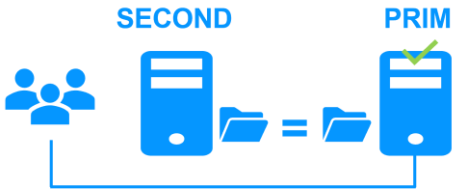
When server A recovers from a failure (server A reintegration), SafeKit automatically resynchronizes the files of this server from the other server.

Only files modified on Server B while Server A is inactive are resynchronized.

The reintegration of server A is done without stopping the execution of the AEOS and SQL application on server B.

- Step 4. Return to normal:

After reintegration, the files are again in mirror mode as in step A. The system is in high availability with the AEOS and SQL application running on server B and with real-time replication of changes to server A.



If the administrator wants his application to run on server A as a priority, he can execute a failover command, either manually at a convenient time or automatically by configuration.

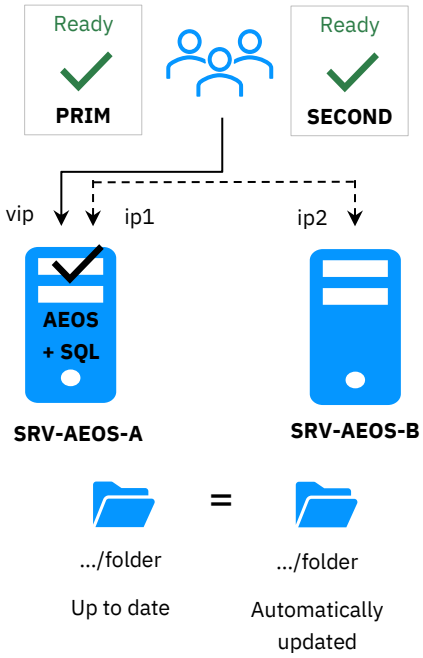
Information source: Nedap AEOS: the simplest high availability cluster between two redundant servers - Evidian

2. Prerequisites

- The configuration must be at least the following:
  - Install AEOS + SQL Server on both servers (virtual machines or physical servers)
  - The installation directories must be identical between the two servers
  - Provide disk storage of approximately 4GB for SafeKit in the system disk
  - AEOS licenses must have the “virtual IP address” cluster (mentioned in the documentation)
  - The license for SafeKit (without a license the software shuts down every 3 days)

- Define the network mapping as below (example to adapt):

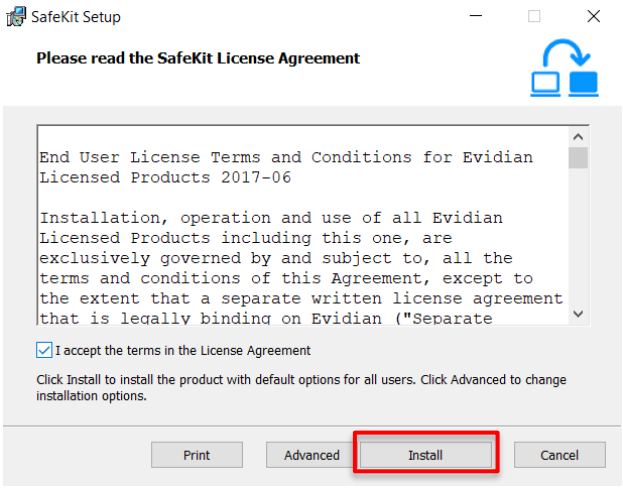
Network name (hostname)	IP Address	Feature
SRV-AEOS-A	192.168.1.101 (ip1)	AEOS + SQL
SRV-AEOS-B	192.168.1.102 (ip2)	AEOS + SQL
SRV-AEOS-A	192.168.1.101	SafeKit administration console
cls.nedap.fr	192.168.1.250 (vip)	Virtual IP Address in the same subnet (alias)



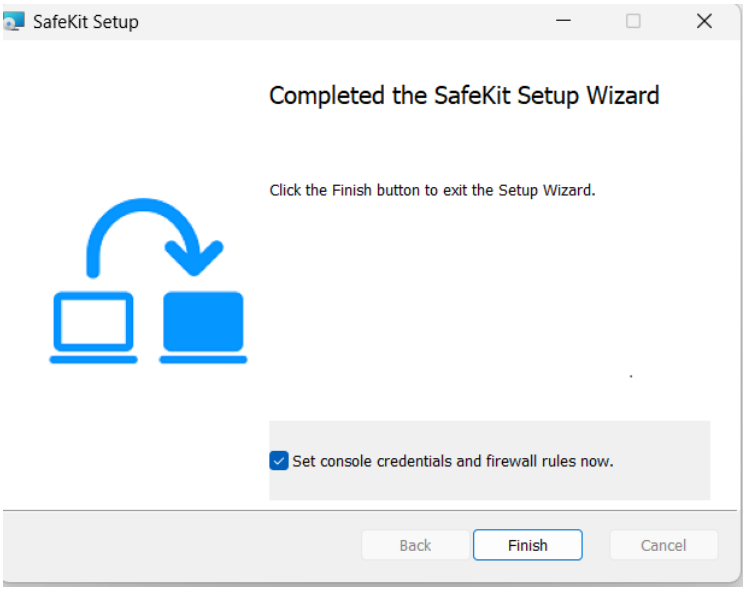
3. SafeKit

3.1. Servers A & B: Installation

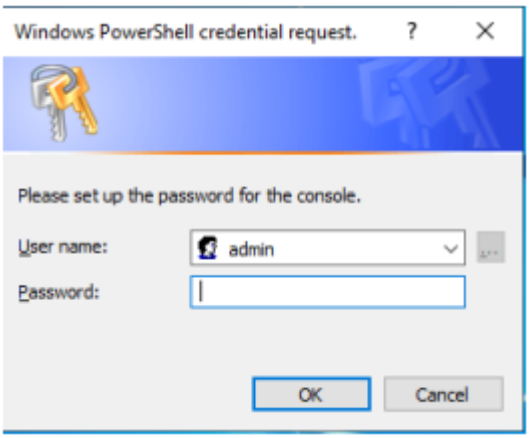
- Start installation of the safekit_windows_x86_x_x_x_x.msi package
- Accept the terms in the License Agreement and click on the "Install" button



- At the end of the installation, select "Set console credentials and firewall rules now."



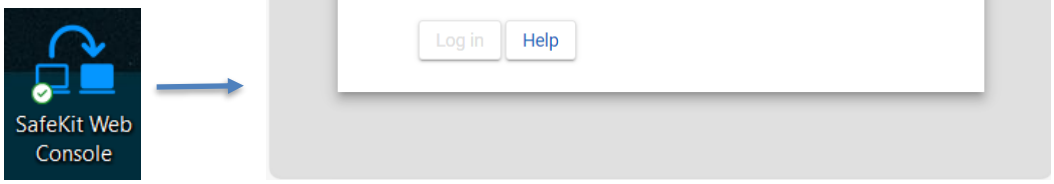
- Click on "Finish" and SafeKit
  - configures Microsoft Windows Firewall for SafeKit.
  - opens a window to enter the password for the admin user of the SafeKit web console. Set the same password on all nodes.



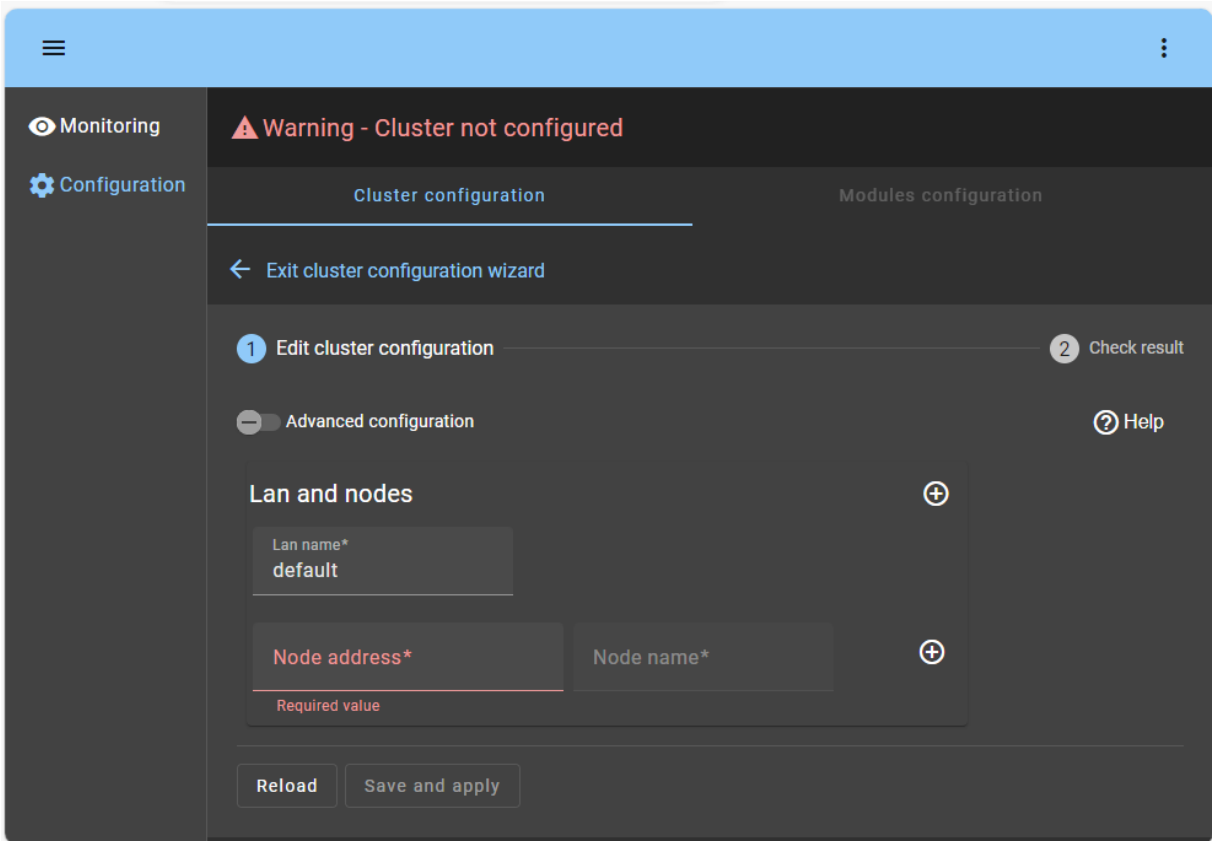
- Copy the module "[nedap.safe (get it here)]" (AEOS and SQL basic configuration) to the C:\safekit\Application_Modules\generic\ folder.
- Copy the license file "license.txt" to the c:\safekit\conf\ folder.

  Three licensing modes are available:
  - Without a license key, the software will shut down every 3 days
  - With a [one-month temporary license key]
  - With a definitive license linked to the machine (hostname and OS)

- Launch the "SafeKit Web Console" from the desktop shortcut. And login with admin and the password previously set.



- After authentication, the administration console appears

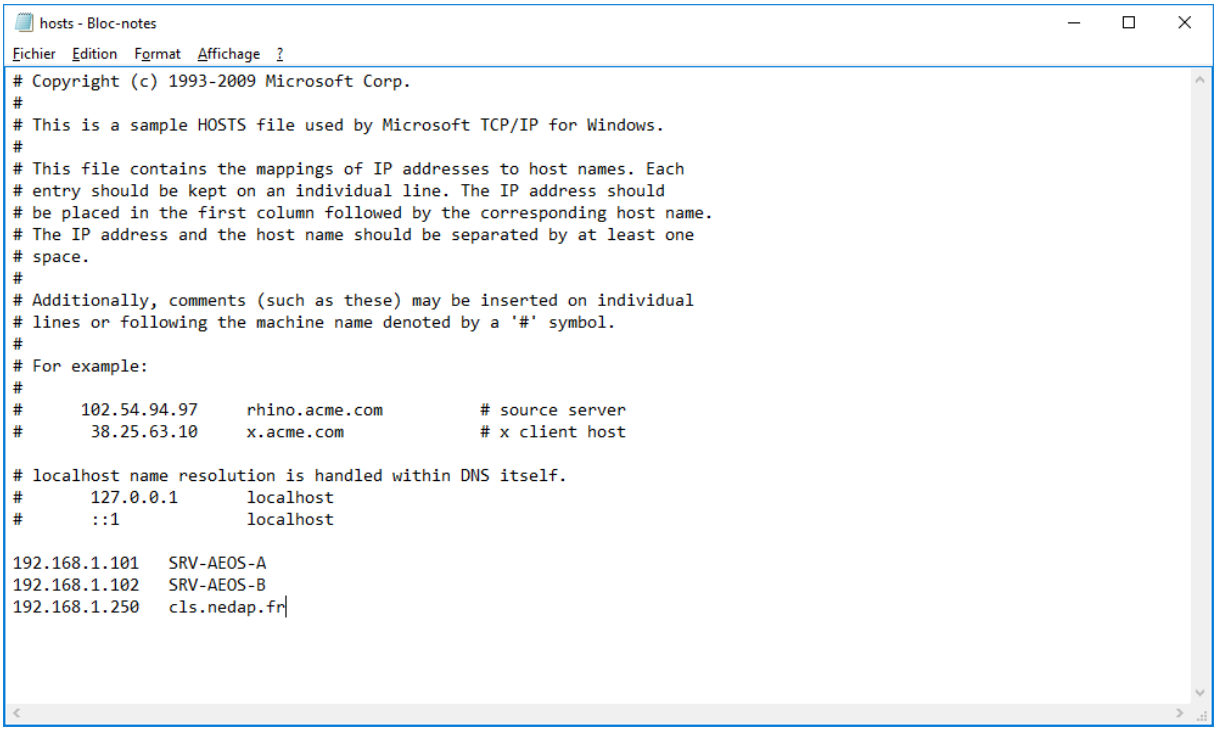


Important :

- Reproduce the installation operation on server B and set the same password.
- SafeKit configuration is only made from a single browser (for example: server A).

3.2. Server A & B: Configuring the hosts file

- In the absence of DNS, you must configure the local “DNS” of each machine (servers and client workstations)
- Go to the C:\Windows\System32\drivers\etc\ folder, open the hosts file and add the servers and virtual IP

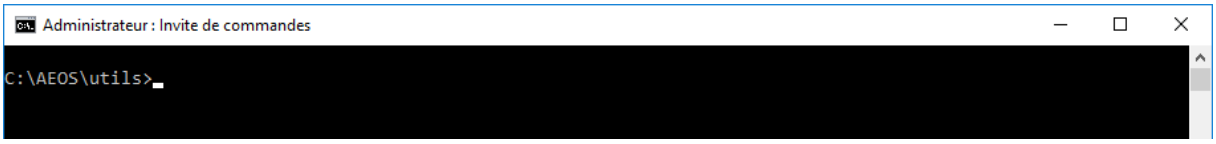


Important :

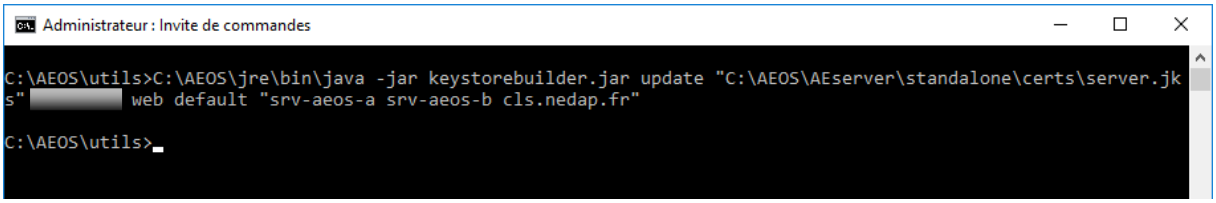
- Perform this step on both servers A & B

3.3. Serveur A & B: Editing AEOS certificates

- When using Nedap self-signed certificates, it is imperative to include the cluster in the DNS.
- Launch a command prompt as administrator from the c:\aeos\utils\ folder



- Run the following query: C:\AEOS\jre\bin\java -jar keystorebuilder.jar update "C:\AEOS\AEserver\standalone\certs\server.jks" ****** web default "srv-aeos -a srv-aeos-b cls.nedap.fr"



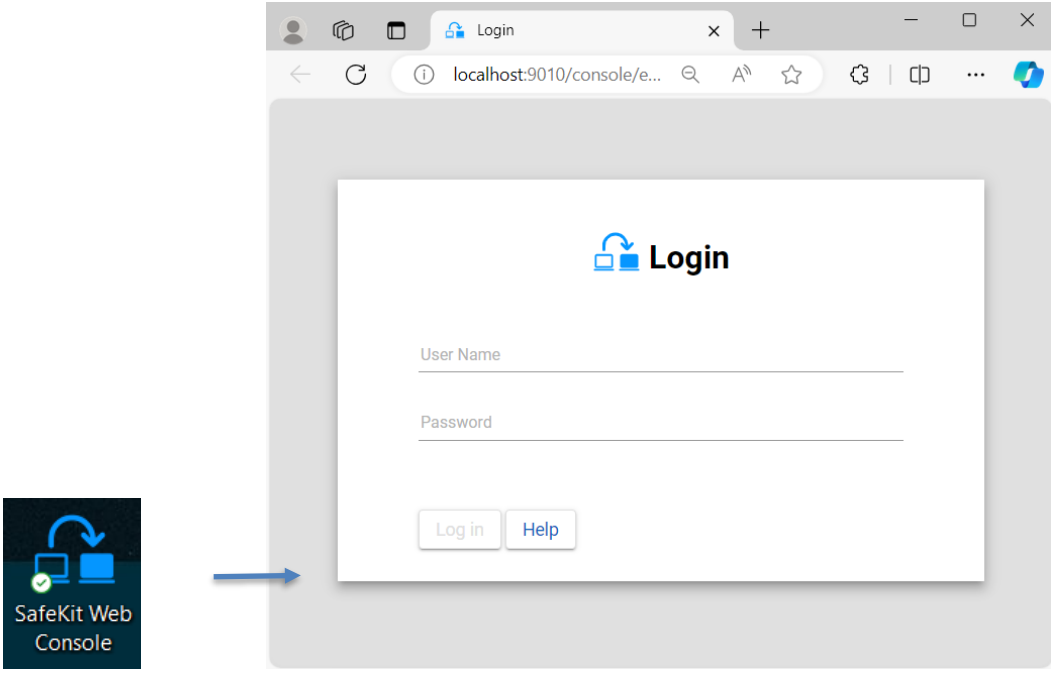
Note: If you are using your own authority please do not follow this step. On the other hand, the update must be done via a CSR.

Important:

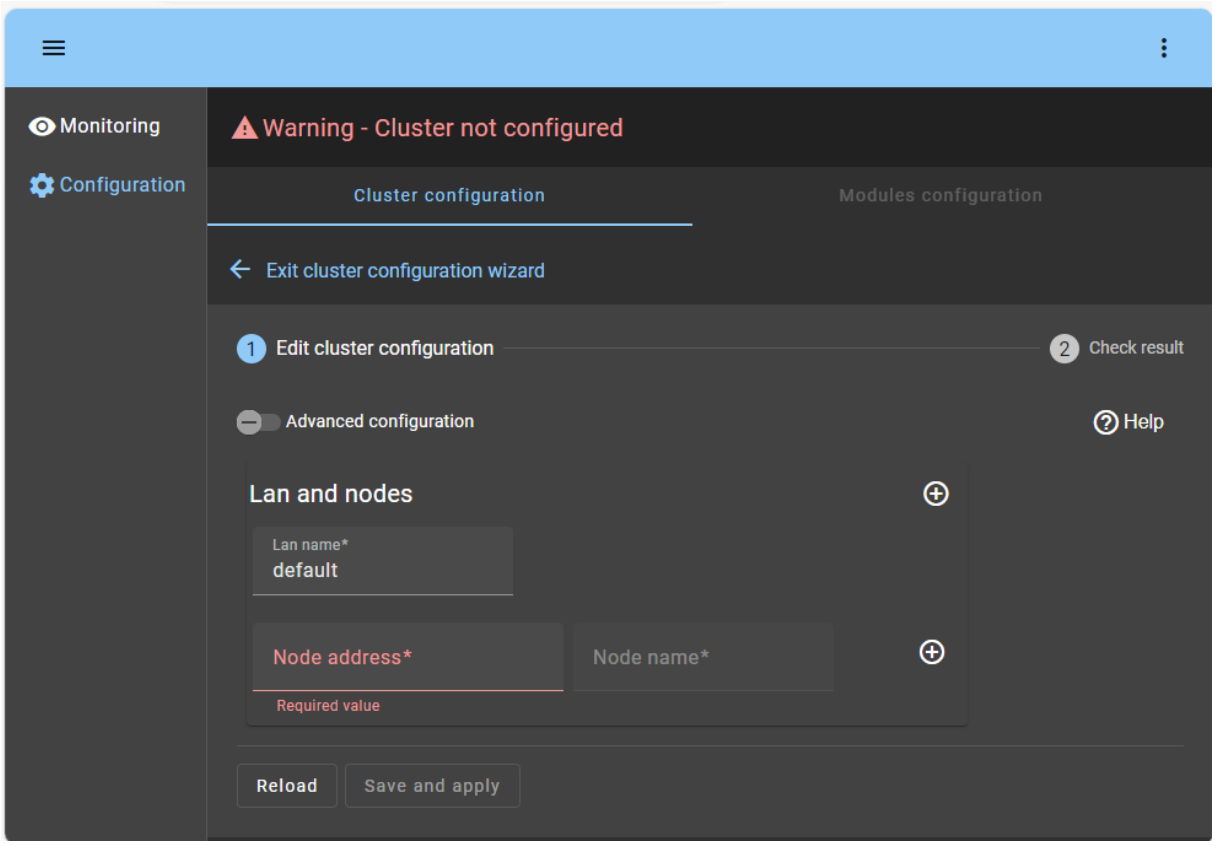
- Perform this step on both servers A & B

3.4. Server A: Configuration of the failover cluster

- Launch the "SafeKit Web Console" from the desktop shortcut. And login with admin and the password set during installation.



- After authentication, the administration console appears

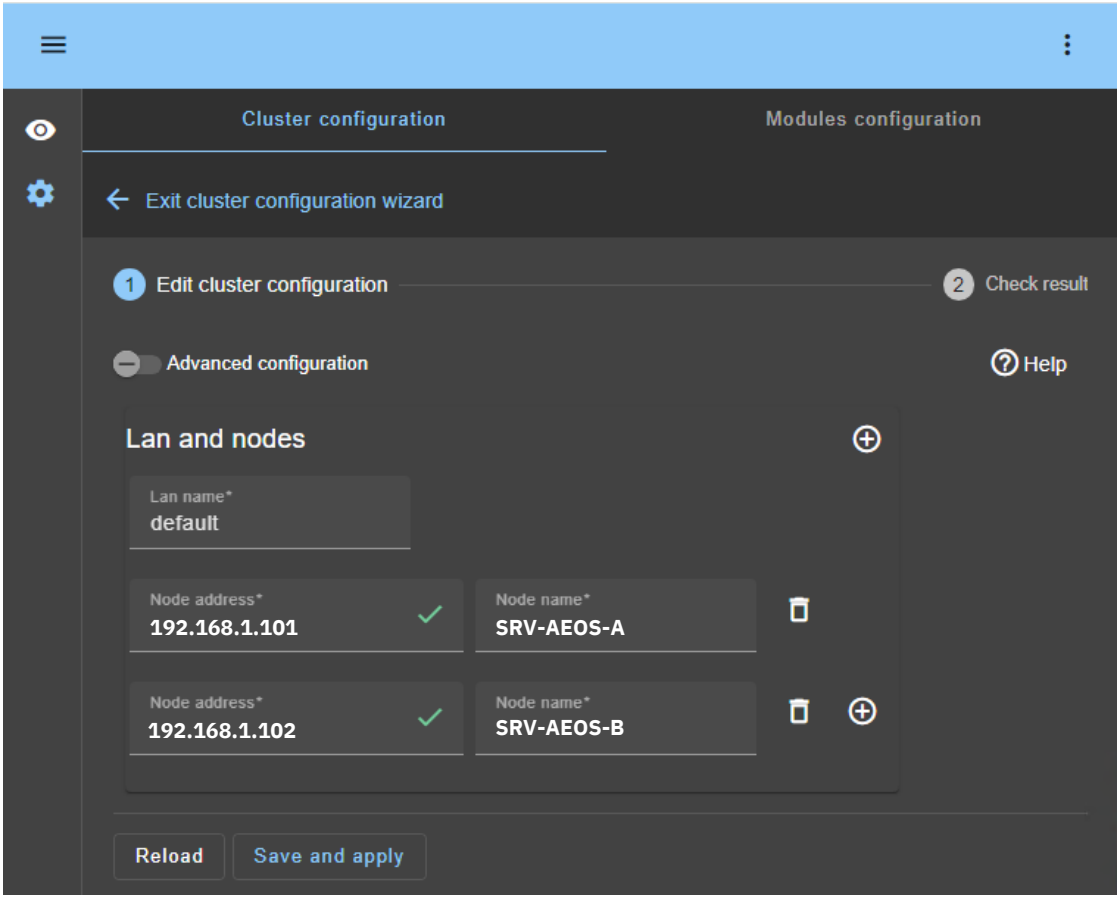


3.4.1. Node addresses

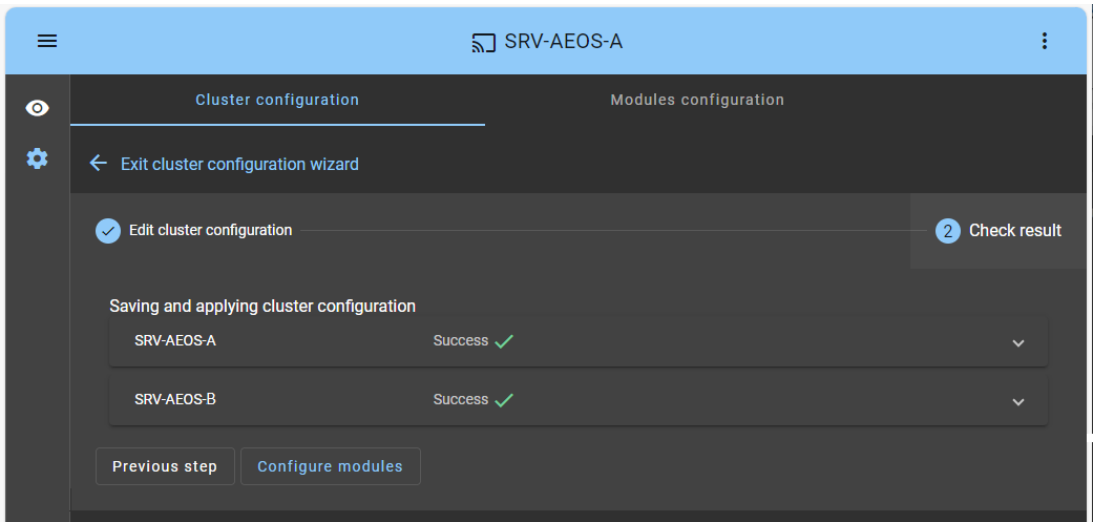
- Enter IP address of Server A in "Node address" and then press Tab key to fill "Node name"
- Click on + and do the same with Server B.

Note: Red color indicates a connection error.

- Click on "Save and apply" to save the cluster configuration (on both servers).

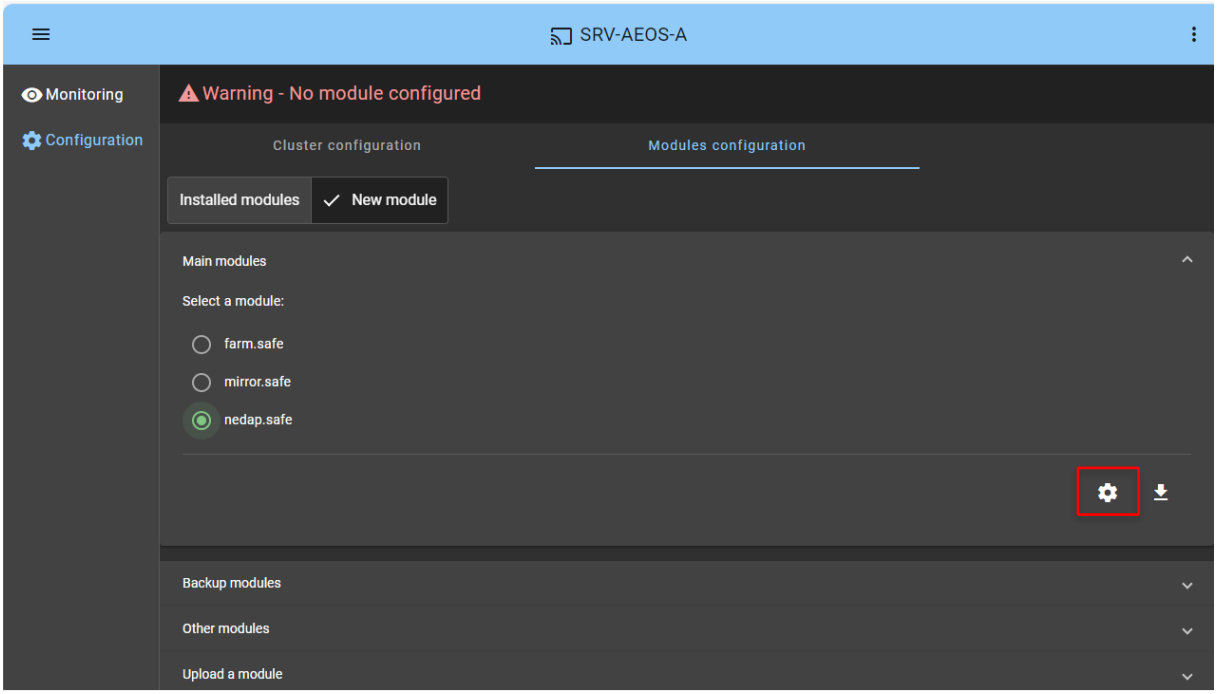


- Check result.

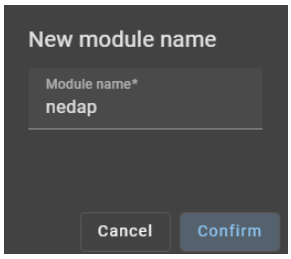


3.4.2. nedap.safe configuration

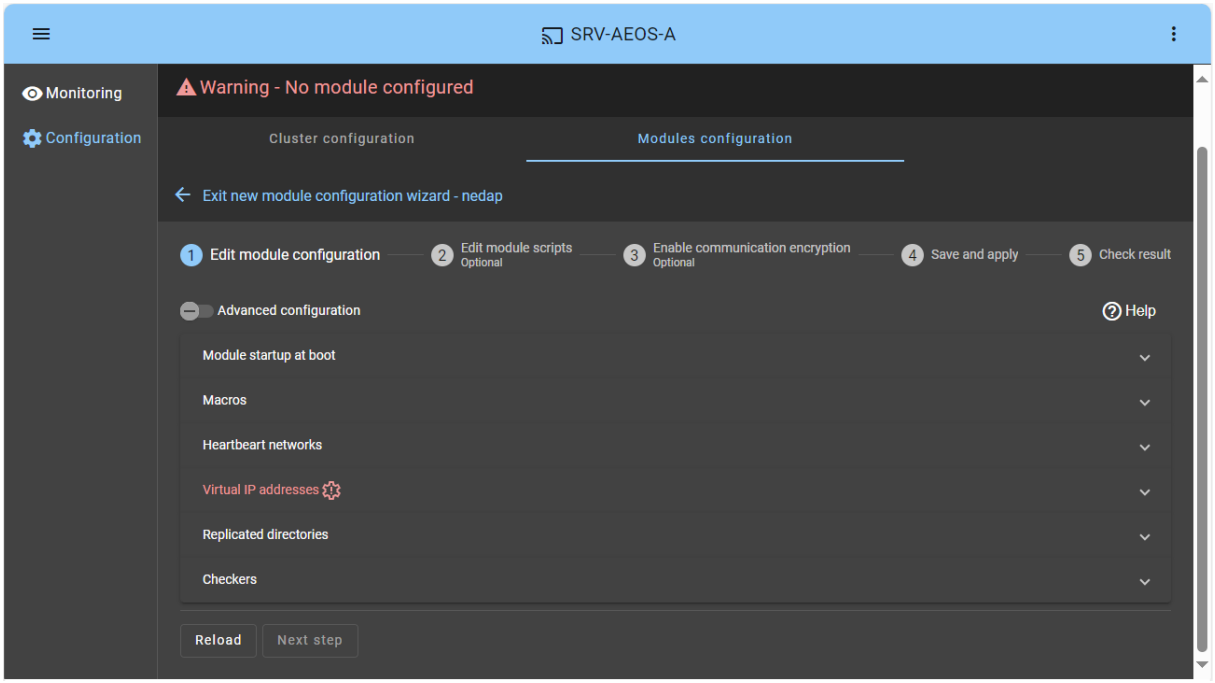
- Click on "Modules configuration" tab → "New module" button → nedap.safe. And click on the configure icon. The console finds nedap.safe in the Application_Modules/generic/ directory on the server side if you dropped the module there during installation.



- Define a module name and "Confirm" (example nedap).

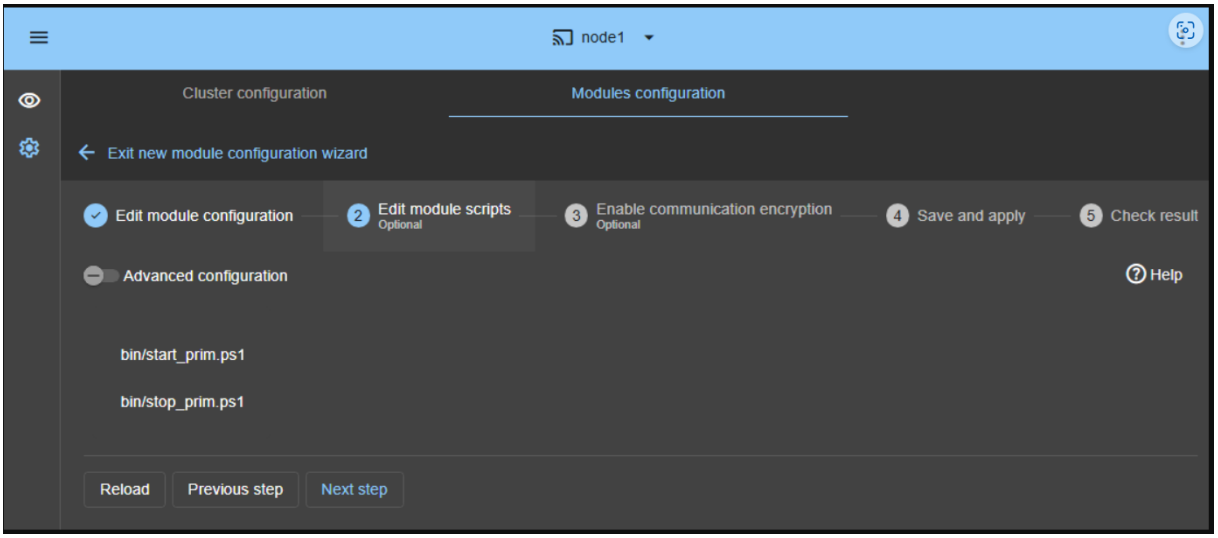


- Configure module parameters.

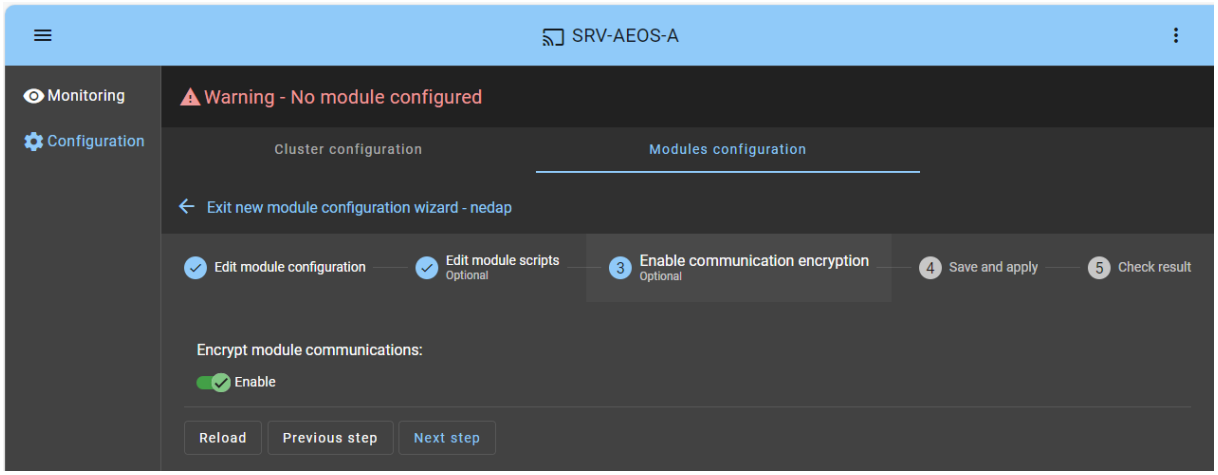


- Module startup at boot: Startup type: Automatic, Startup delay: 0
- Macros / SERVICES: MSSQLSERVER, AEOS Application Server, AEOS Lookup Server
- Heartbeat networks: default
- Virtual IP addresses: 192.168.1.250 (example to adapt)
- Replicated directories: define SQL & AEOS directories (example to adapt):
  - SQL Log: C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\Log
  - SQL Data: C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL\DATA
  - AEOS Configuration: C:\AEOS\data\aemon\configurations
- Checkers → Processes/services:
  - AEOS_appl.exe process
  - sqlservr.exe process

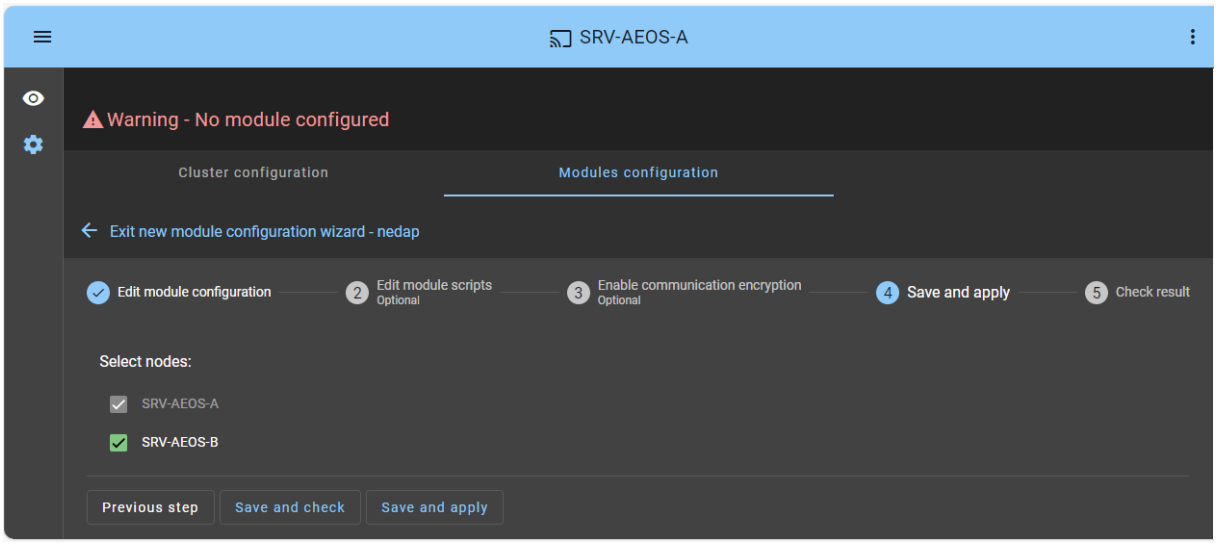
- Edit scripts (optional): click directly on Next step.
  - This step is optional and can be skipped in most cases, as the restart scripts are already pre-configured to restart services defined in the previous step.
  - So, click directly on Next step.
  - start_prim.ps1 starts all services in the order specified in the SERVICES list, while stop_prim.ps1 stops all services in the reverse order.
  - Additionally, start_prim.ps1 checks the startup of each service and stops the module if any service fails to start correctly.
  - During module configuration, the boot startup of services will automatically be set to 'Manual'. This ensures that services do not start automatically upon system boot, but instead, they will be initiated only when the module itself is started.



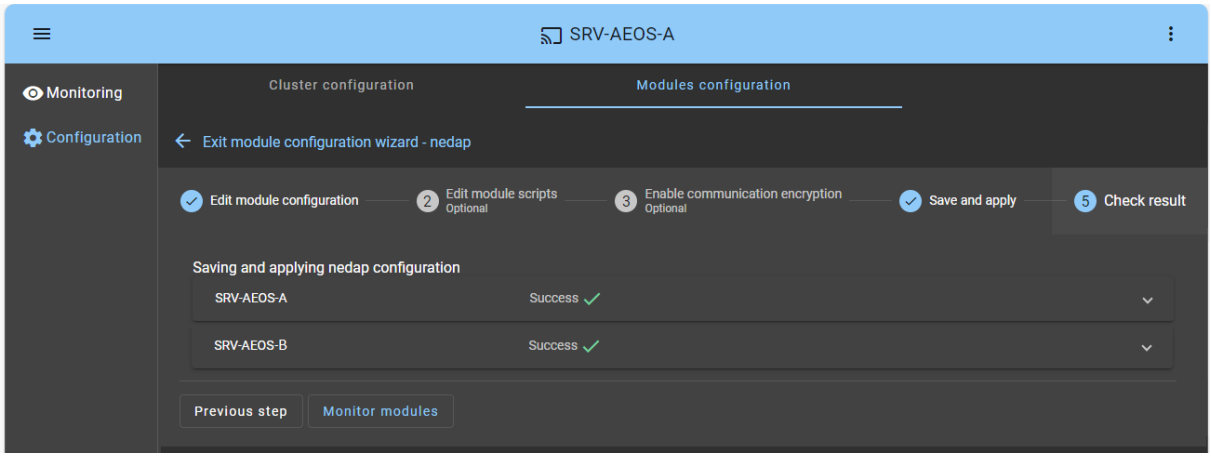
- Encryption: keep the default "Enable" value



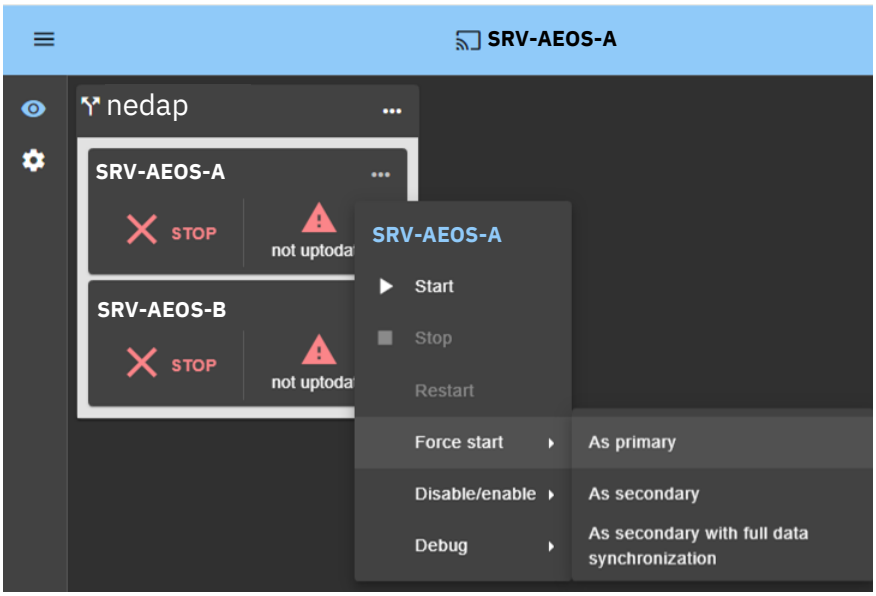
- Click on "Save and apply" to configure the module on both nodes.



- Check result: the result must be success on both nodes.



- Go in the monitoring and start server A as primary server (server A is supposed to be the server with the up-to-date data).

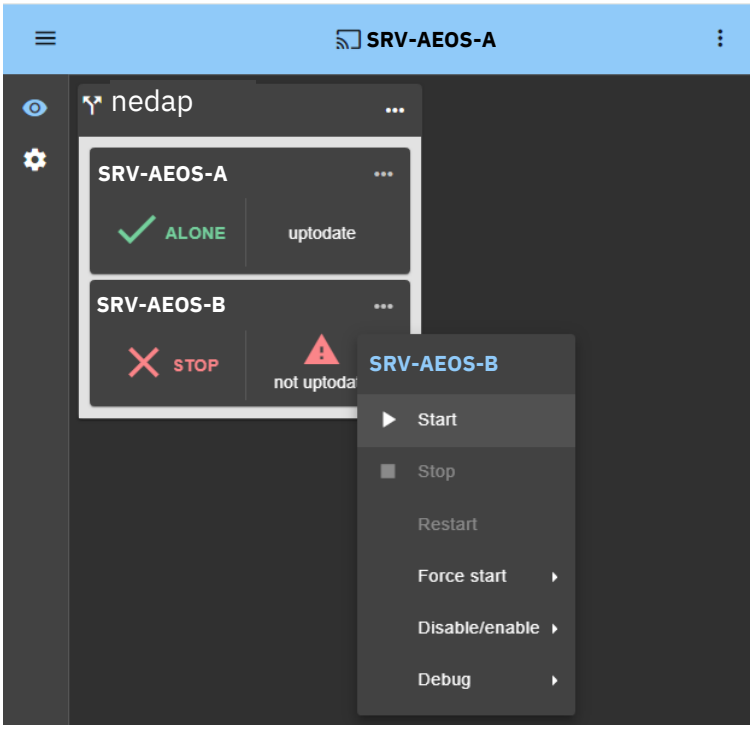


Note: Server B can be chosen if its data is more recent than server A.

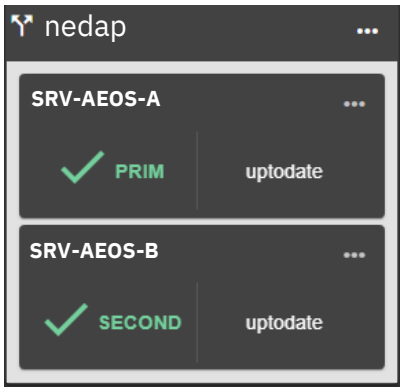
- Wait for the server to move from **WAIT** (orange) state to **ALONE** (green).

  Note: Check the server A log (by clicking on SRV-AEOS-A) if **ALONE** (green) is not reached.

- Start server B.



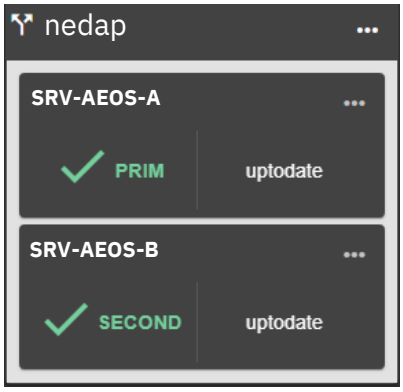
- Server B stays in the **SECOND** (orange) state while resynchronizing replicated folders. And ends in the state **SECOND** (green).
  Note: Check the server B log (by clicking on SRV-AEOS-B) to see resynchronization progress.



3.5. Cluster validation

3.5.1. Check service states

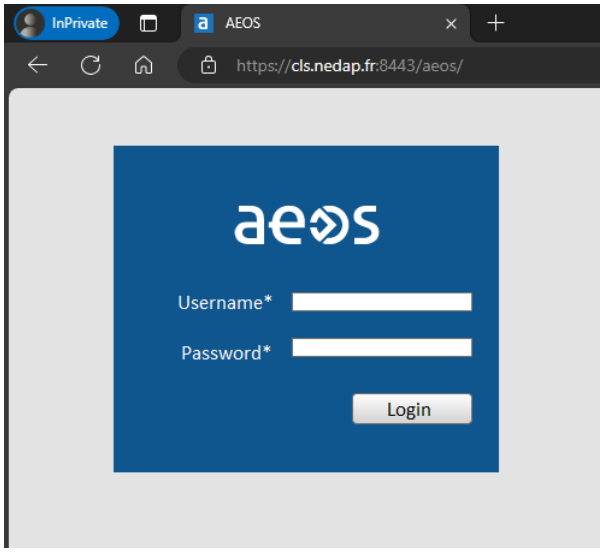
- Initial cluster state



- Windows service states:

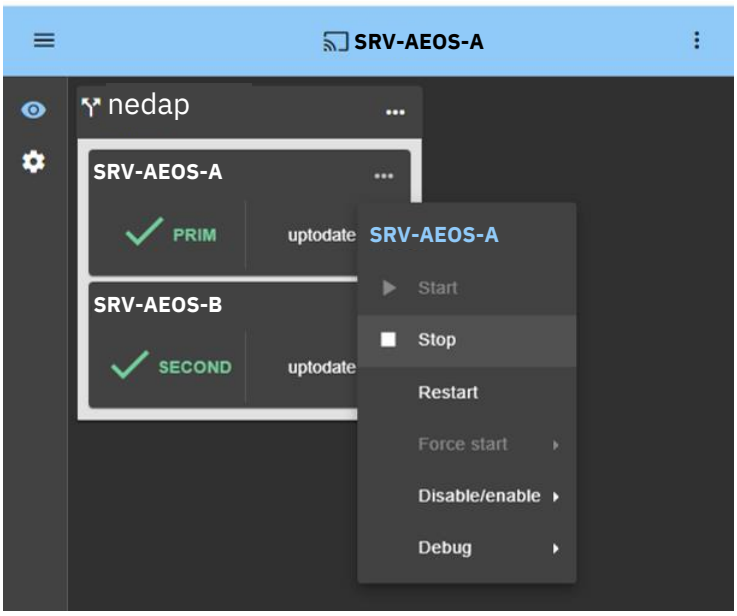
Service name	SRV-AEOS-A	SRV-AEOS-B
AEOS Application Server	Started	Stopped
AEOS Lookup Server	Started	Stopped
SQL Server (MSSQLSERVER)	Started	Stopped

- Validate that AEOS is working on server A by connecting to the cluster URL (virtual IP) https://cls.nedap.fr:8443/



3.5.2. Manual failover

- Stop server A from the contextual menu by clicking on Stop

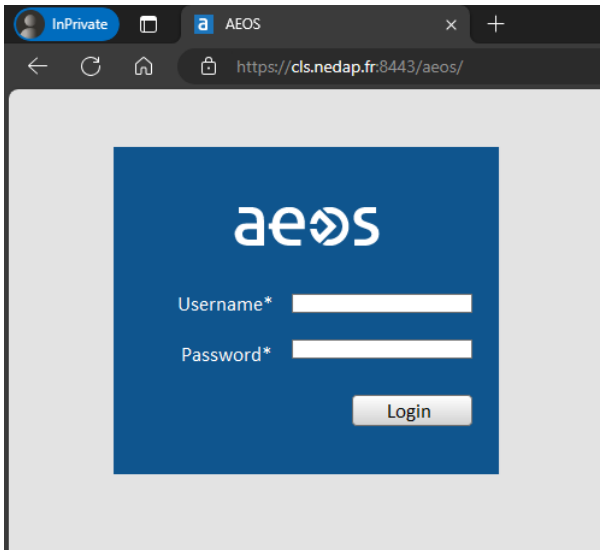


- Server B should go into **ALONE** (green) state and server A into **STOP** (red) state.

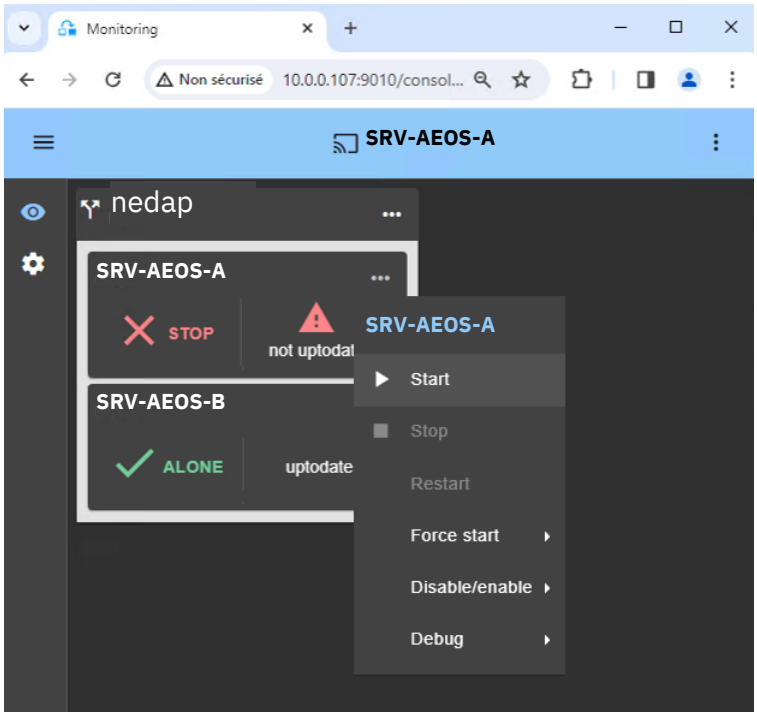
- Windows service states:

Service name	SRV-AEOS-A	SRV-AEOS-B
AEOS Application Server	Stopped	Started
AEOS Lookup Server	Stopped	Started
SQL Server (MSSQLSERVER)	Stopped	Started

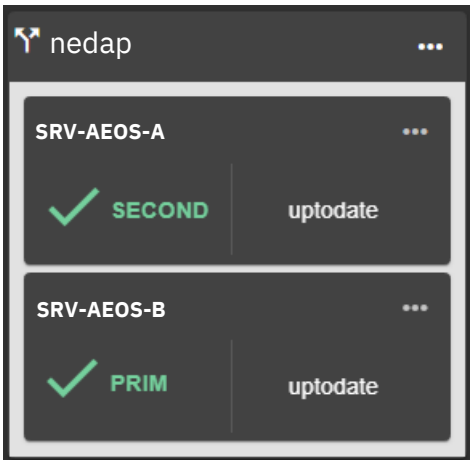
- Validate that AEOS is working on server B by connecting to the cluster URL (virtual IP) https://cls.nedap.fr:8443/



- If all the tests are correct, start server A using its contextual menu.



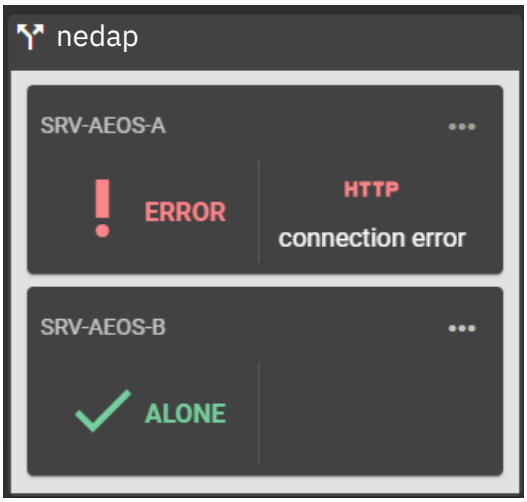
- Server A stays in the **SECOND** (orange) state while resynchronizing replicated folders. And ends in the state **SECOND** (green). The cluster is then operational again.



3.5.3. Server failure

- Start the console on server B. Before the outage, the initial status of the servers is:

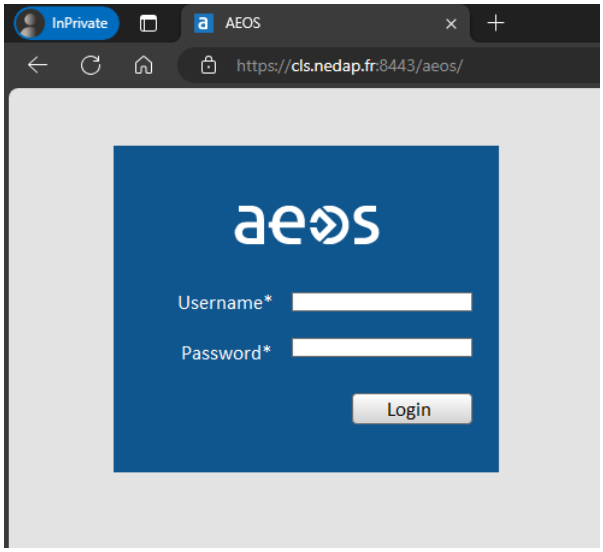
- Server A suffered a power outage (for example), server B takes over automatically without user action.



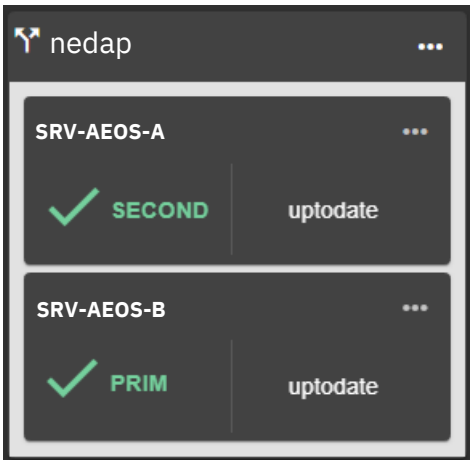
- Windows service states:

Service name	SRV-AEOS-A	SRV-AEOS-B
AEOS Application Server	Hardware failure	Started
AEOS Lookup Server	Hardware failure	Started
SQL Server (MSSQLSERVER)	Hardware failure	Started

- Validate that AEOS is working on server B by connecting to the cluster URL (virtual IP) https://cls.nedap.fr:8443/



- Following the reboot of server A, server A is automatically reconnected and synchronized. It then becomes the secondary server.



3.6. Activation of HTTPS for the SafeKit console

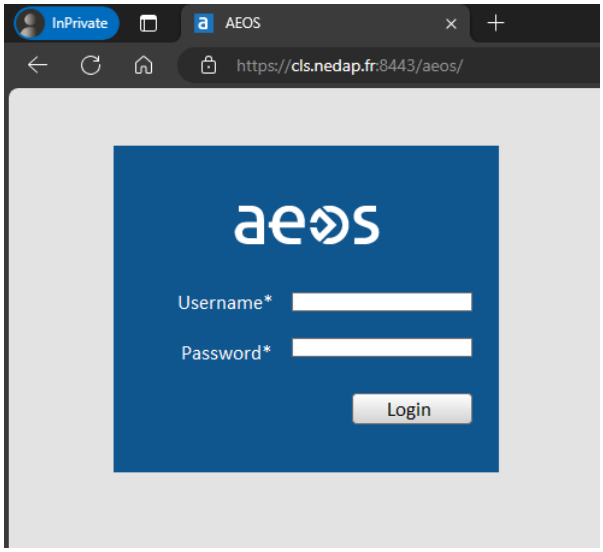
More information: SafeKit User's Guide (evidian.com) / 11. Securing the SafeKit web service

4. Configuration of client and hardware components

4.1. AEOS Classic and Dashboard

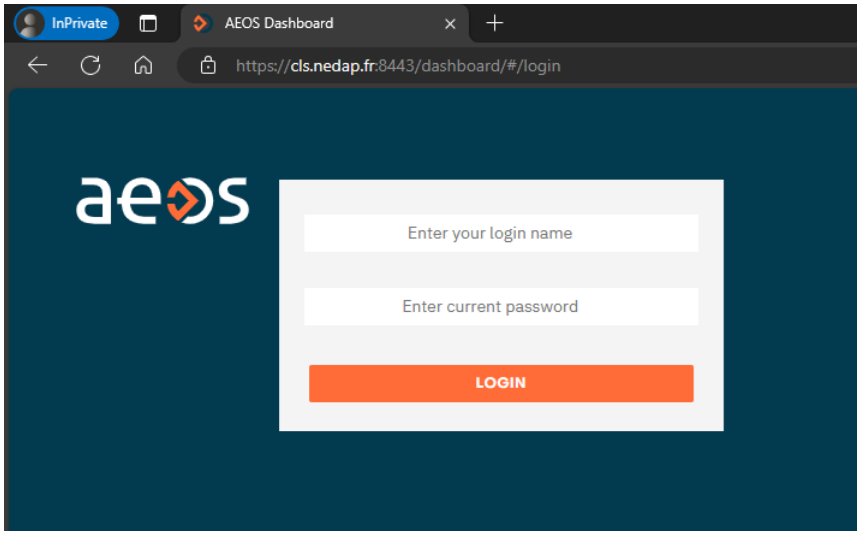
AEOS Classic:

- Create a web shortcut on the client with the following URL: https://cls.nedap.fr:8443/aeos/ to allow a connection to the primary server



AEOS Dashboard :

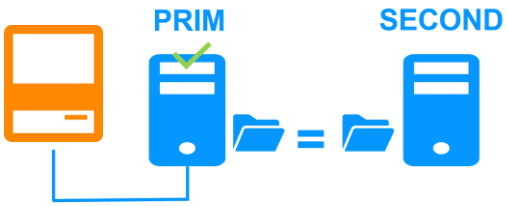
- Create a web shortcut on the client with the following URL: https://cls.nedap.fr:8443/dashboard/ to allow a connection to the primary server



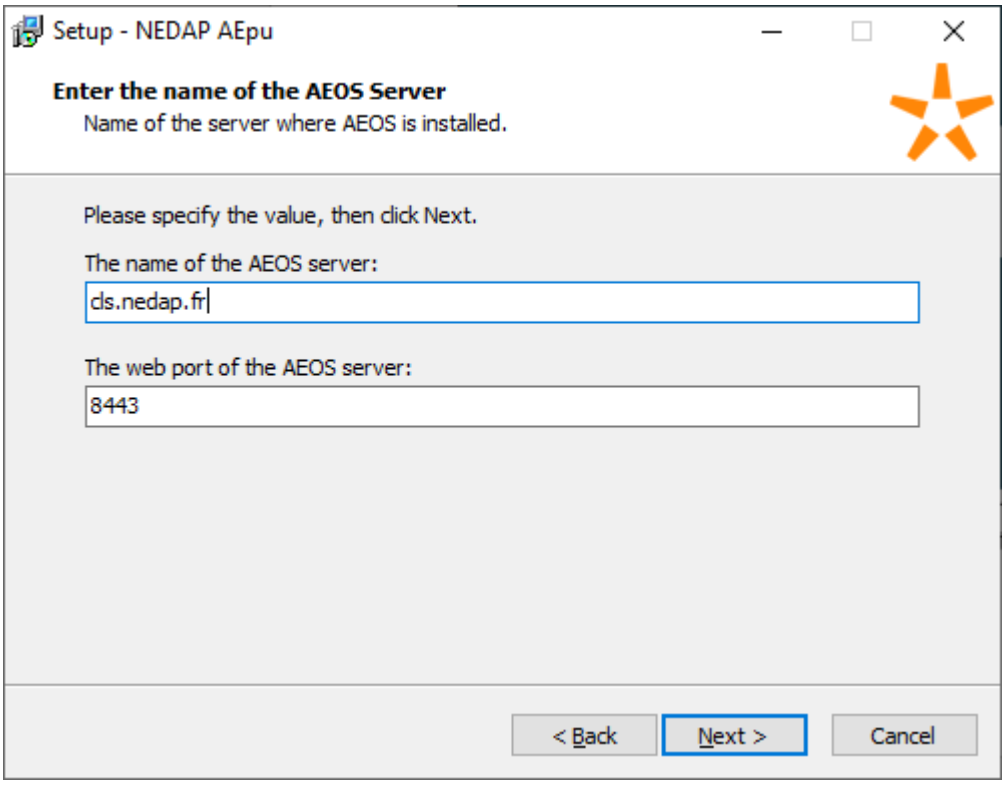
Note: Before, the "hosts" file of the client workstation must be filled in with the cluster name (cls.nedap.fr) and virtual IP (192.168.1.250).

4.2. Virtual AEPU "client"

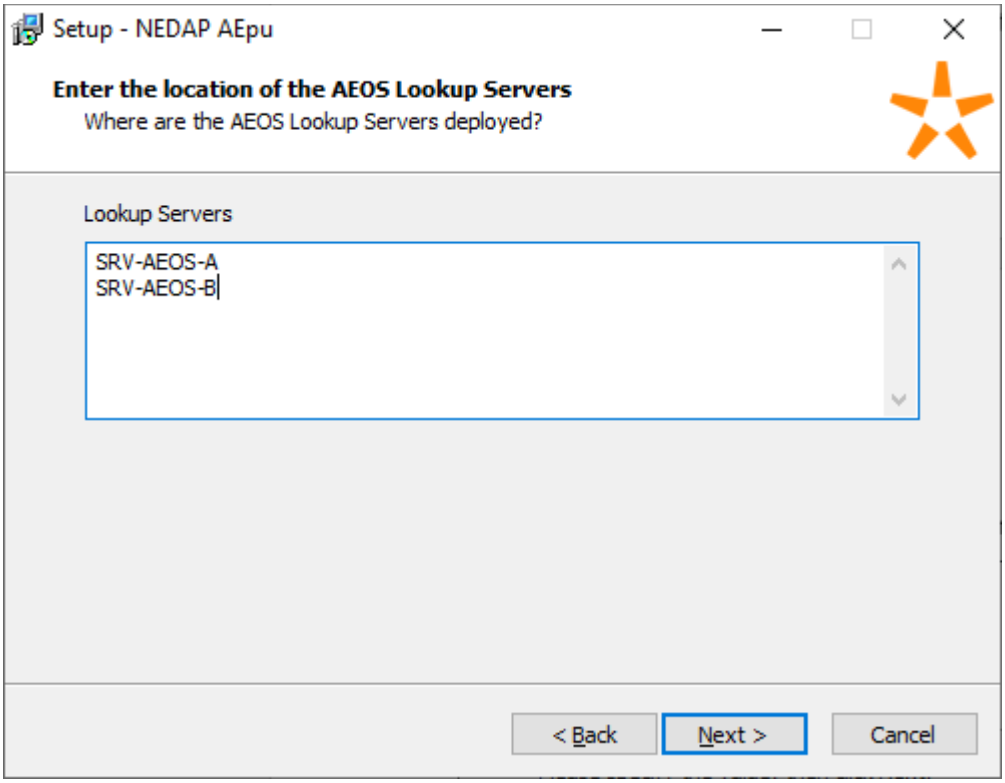
- Virtual AEPU as a client on the network:



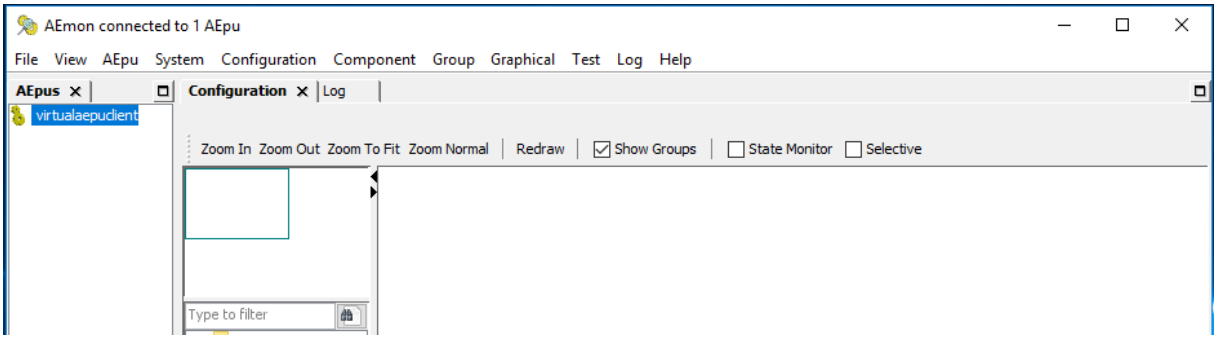
- Restart a setup and define the cluster name in AEOS server name



- Set **both lookup servers** to allow connection to the active one

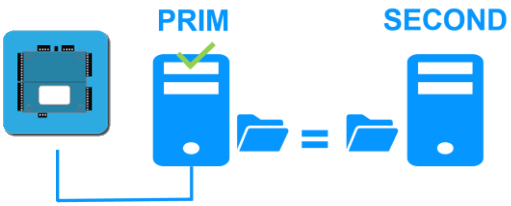


- When starting the service, it must be present in AEmon

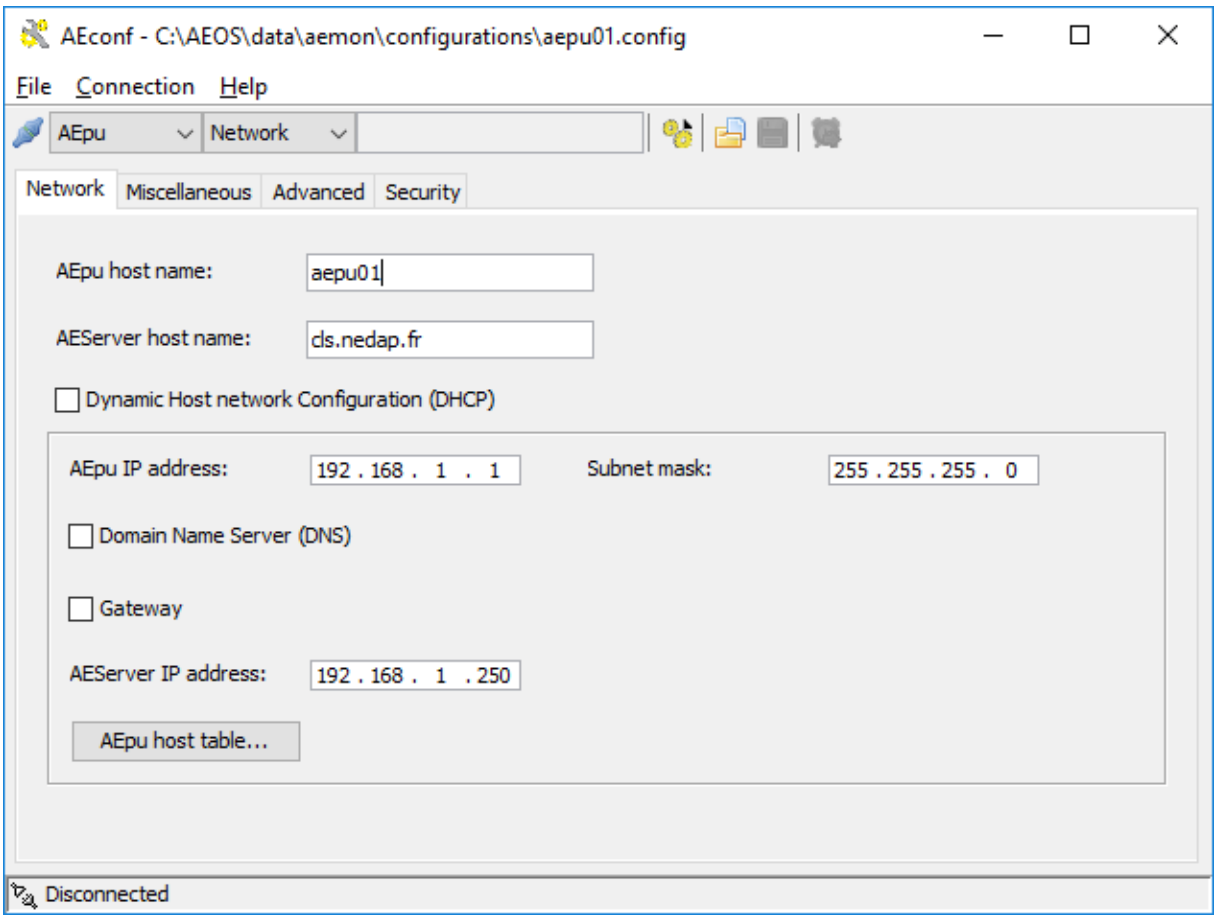


4.3. Physical AEPU

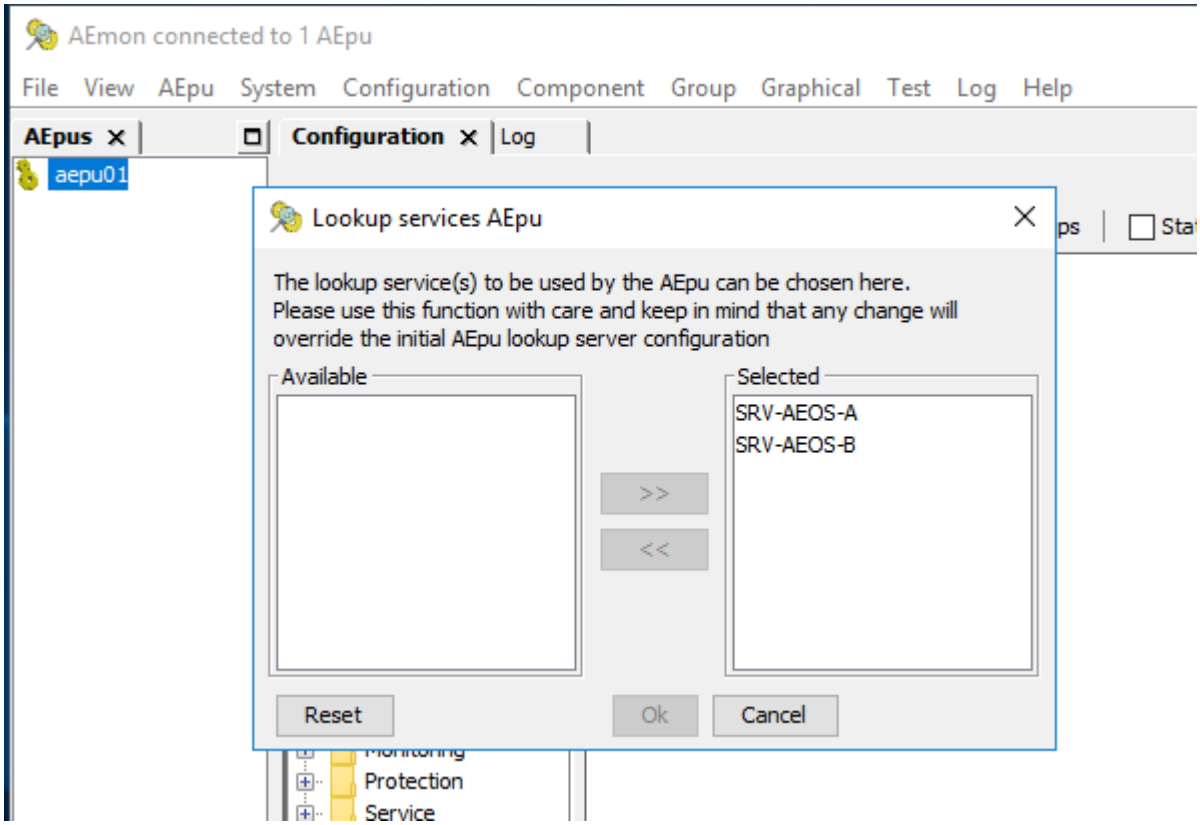
- AEPU on the network :



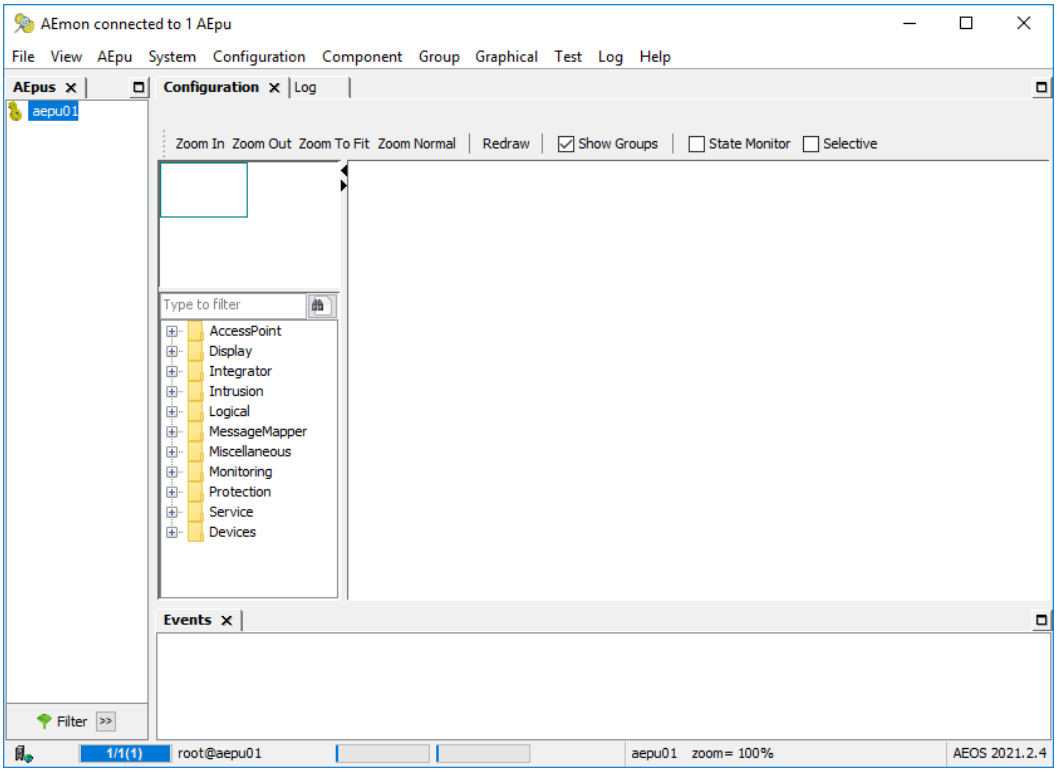
- Set to AEconf with the following settings:
  - AEServer host name: Name of the cluster "cls.nedap.fr"
  - AEServer IP address: Virtual IP "192.168.1.250"



- Open AEmon and define 2 lookup servers in the contextual menu → Properties → Lookup services

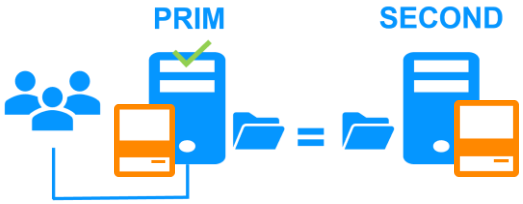


- Check the presence of the AEPU in automatic mode.

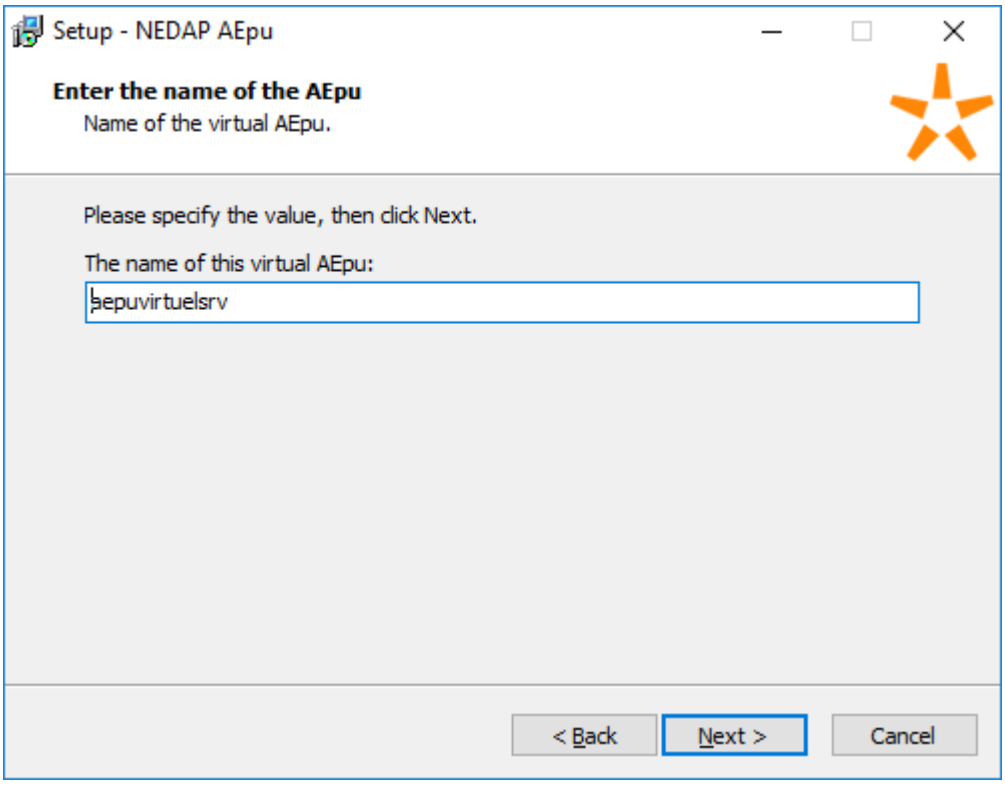


4.4. Virtual AEPU "server"

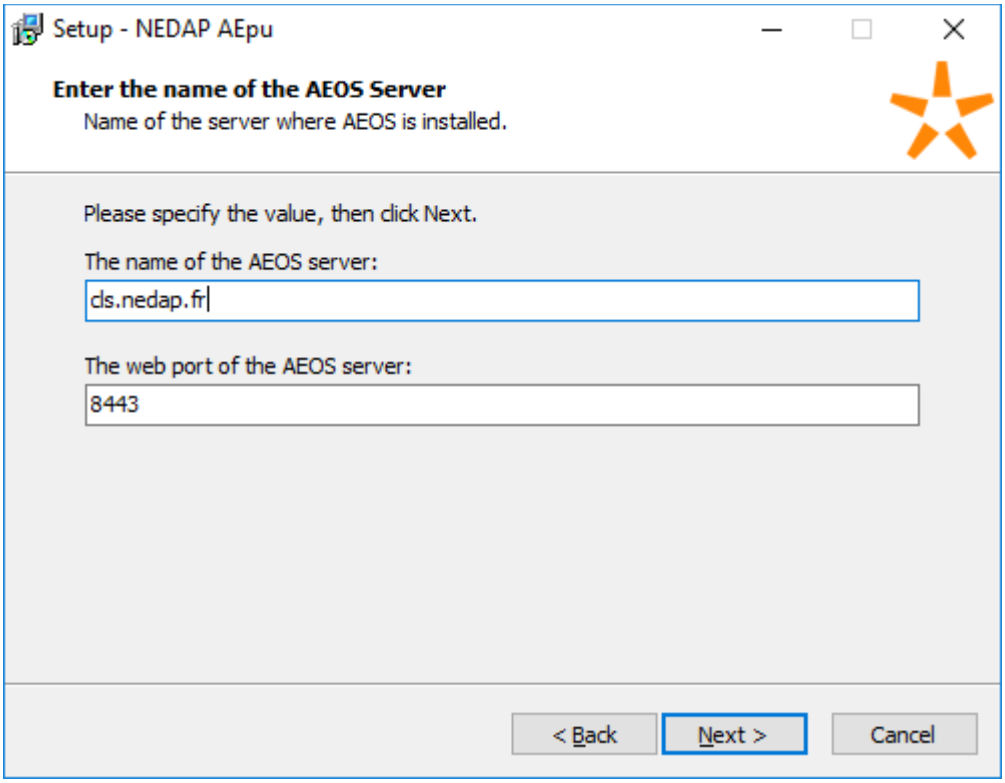
- Virtual AEPU installed on each server with a single active:



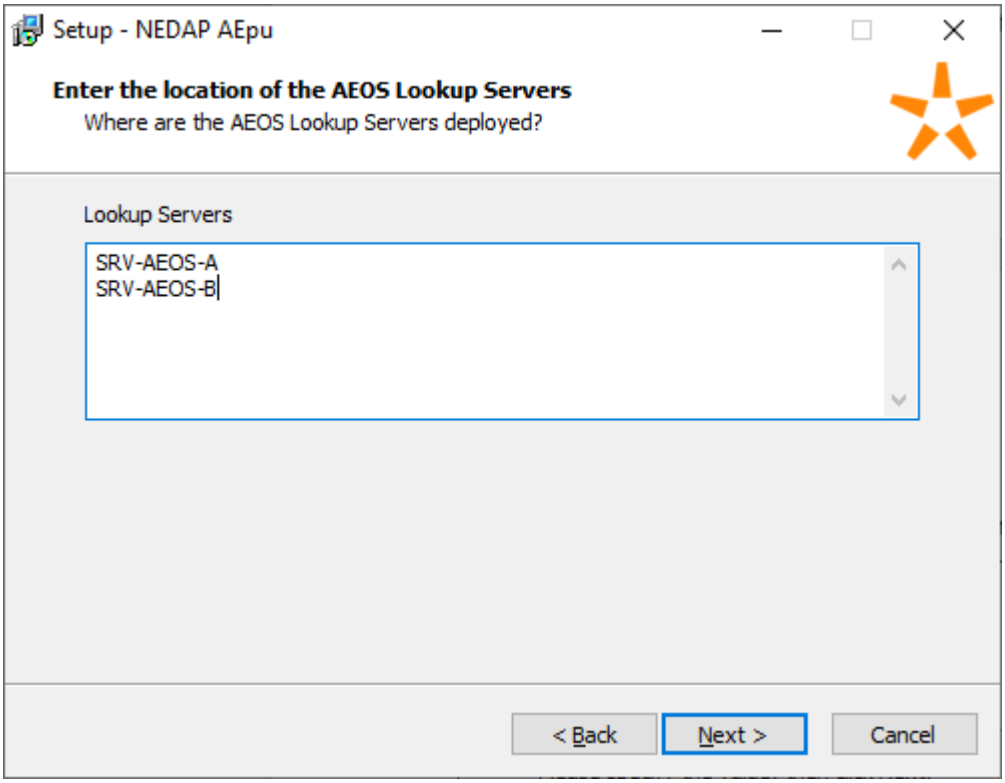
- Restart a setup and define the name of the virtual AEPU



- Set the cluster name and click Next



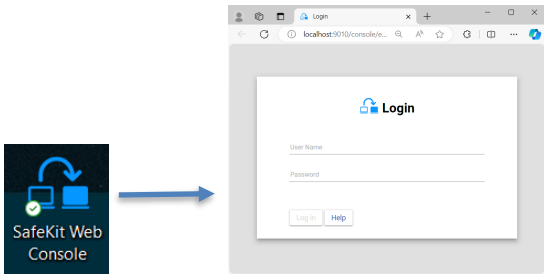
- Set both lookup servers to allow connection to the active one



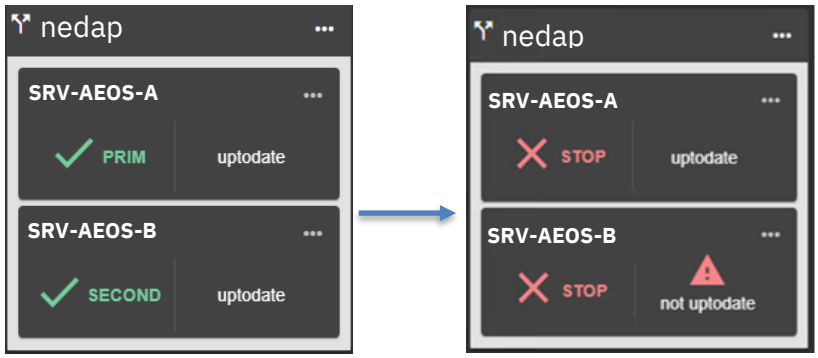
Important:

- Perform this step on both servers A & B with the same AEPU name

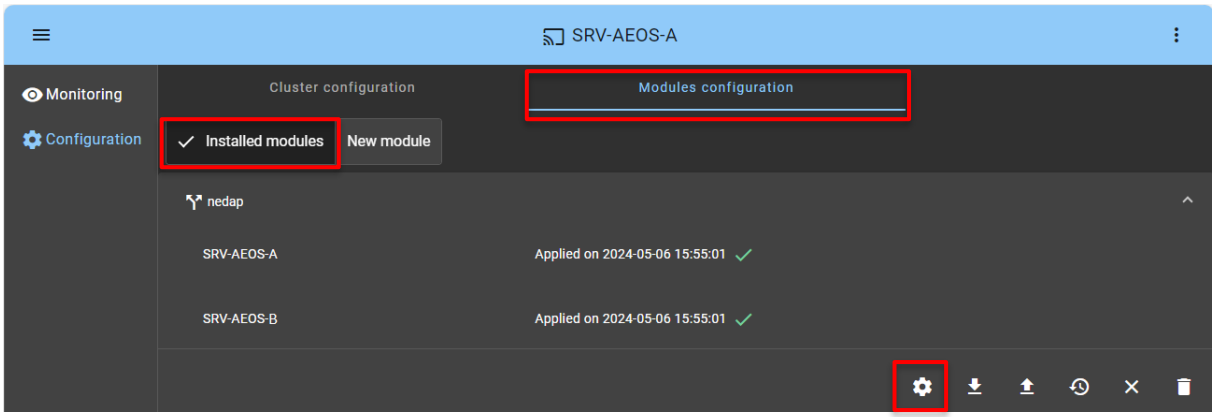
- Start the SafeKit console and authenticate.



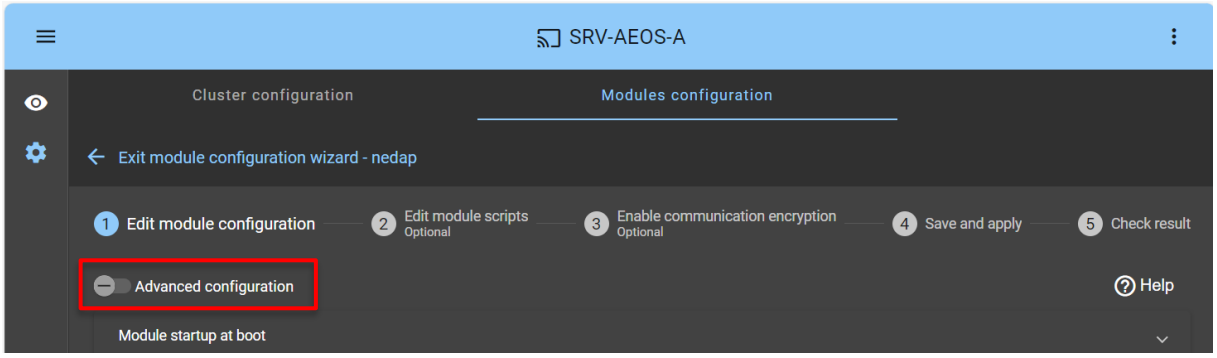
- Before reconfiguring the nedap module, first stop it. Stop first the SECOND to avoid a failover. Use the "Stop" command in "..."



- Click on "Modules configuration" tab → "Installed Modules" → nedap configure icon



- Click on "Advanced configuration" to access userconfig.xml

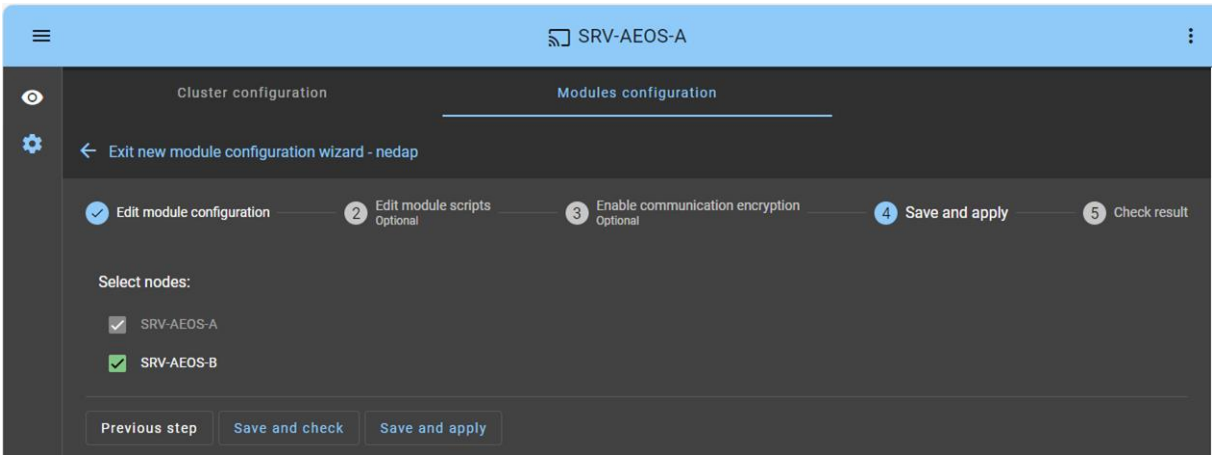


- In userconfig.xml, add in the **SERVICES** macro at the end and separated by a comma: **AEOS aepu service**
- Uncomment the replication of the virtual AEPU directory (optional). And configure the process monitoring of AEOS_aepu.exe (optional, still in comment in the screenshot).

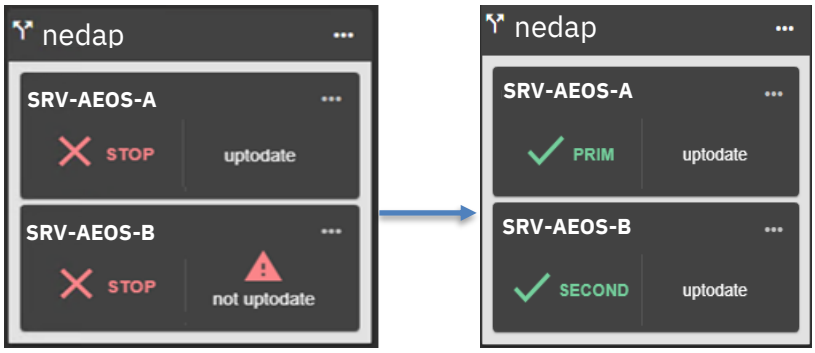
conf/userconfig.xml

```
XML*
    <!-- Define the name or IP address of your virtual server -->
    <!-- File Replication Configuration -->
    <!-- Adapt with the directory of your SQL Server database and logs -->
    <rfs>
      <replicated dir="C:\Program Files\Microsoft SQL
Server\MSSQL13.MSSQLSERVER\MSSQL\Log"/>
      <replicated dir="C:\Program Files\Microsoft SQL
Server\MSSQL13.MSSQLSERVER\MSSQL\DATA"/>
      <replicated dir="C:\AEOS\data\aemon\configurations"/>
      <!--
      <replicated dir="C:\AEOS-aepu\data\aepu" />
      <replicated dir="C:\Program Files (x86)\NEDAP\NedapSqlImport\Profil" />
      <replicated dir="C:\Program Files (x86)\NEDAP\NedapSqlExport\Profil" />
      <replicated dir="C:\Program Files\AppVision 4\Configurations" />
      -->
    </rfs>
    <!-- Software Error Detection Configuration -->
    <errd polltimer="10">
      <!-- AEOS process -->
      <proc name="AEOS_appl.exe" class="prim" action="restart"/>
      <!-- SQL Server process -->
      <proc name="sqlservr.exe" action="restart" class="prim"/>
      <!-- AEOS aepu process -->
      <!-- <proc name="AEOS_aepu.exe" action="restart" class="prim" /> -->
      <!-- Nedap SQL import process -->
      <!-- <proc name="NSI_service.exe" action="restart" class="prim" /> -->
      <!-- Nedap SQL export process -->
      <!-- <proc name="NSX_service.exe" action="restart" class="prim" /> -->
      <!-- AppVision process -->
      <!-- <proc name="AppServer.exe" action="restart" class="prim" /> -->
    </errd>
    <!-- User scripts activation -->
    <user/>
  </service>
</safe>
```

- Click on "Save and apply" to reconfigure the module on both nodes.

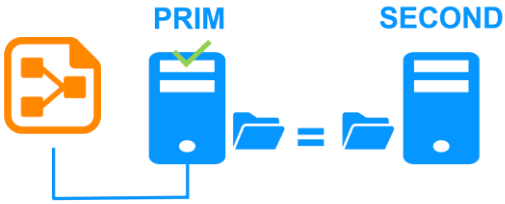


- Restart the nedap module with the "Start" command in "..."

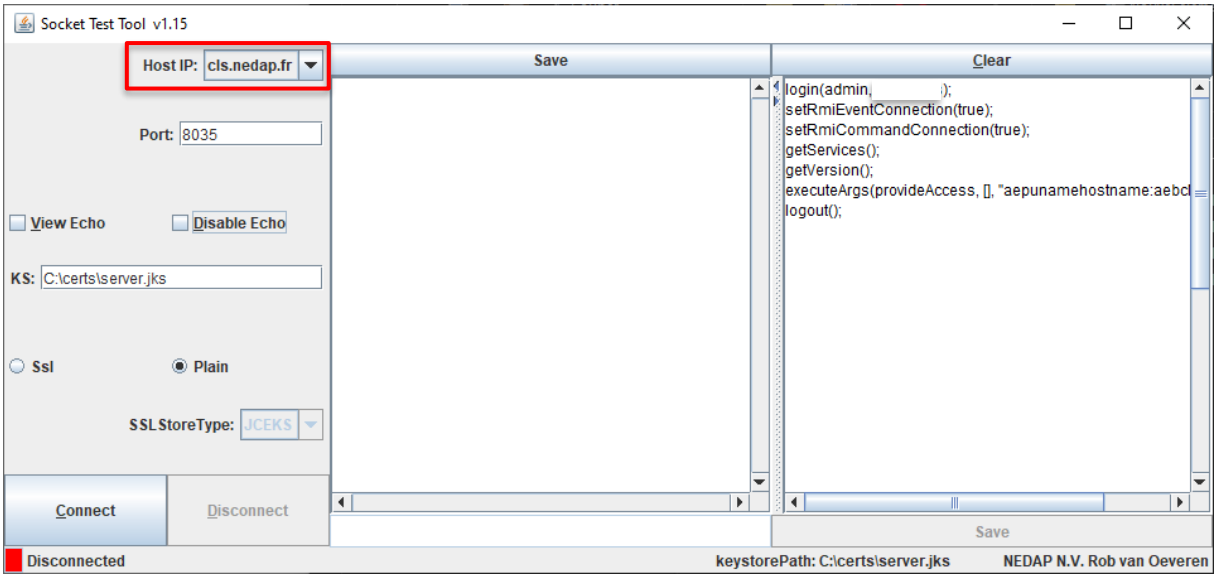


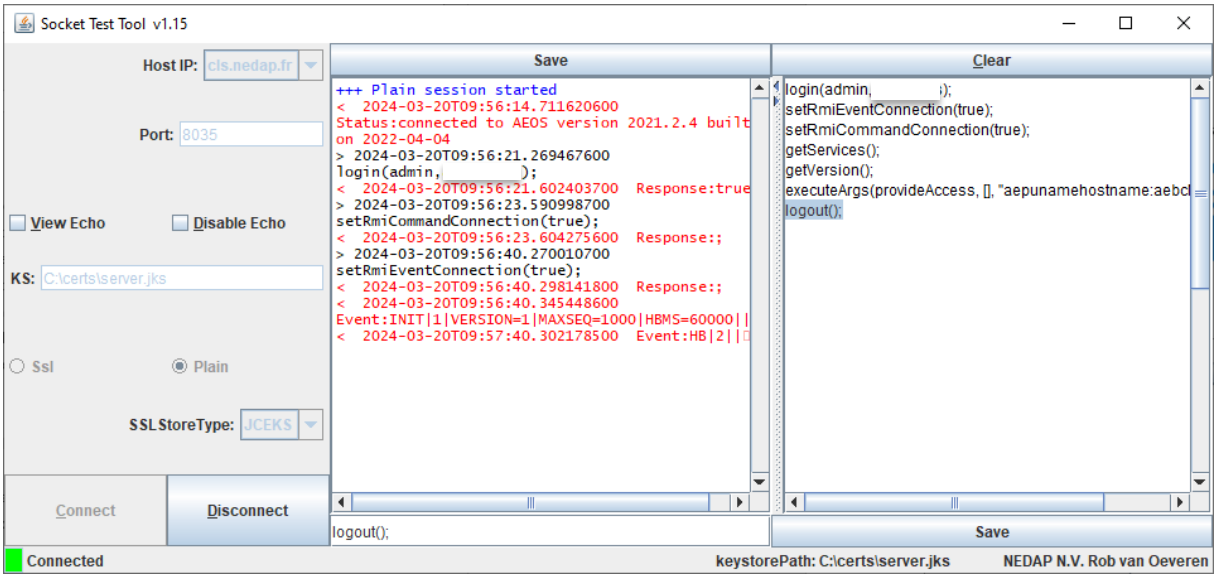
4.5. Socket Interface - RMI

- Hypervisor connected as a client over the network:



- Configure the driver with the cluster name “cls.nedap.fr” and the port 8035 (default)

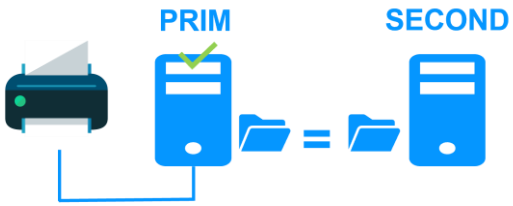




Note: The utility presented is an example for simulating a driver. Its use is only for testing and not for production.

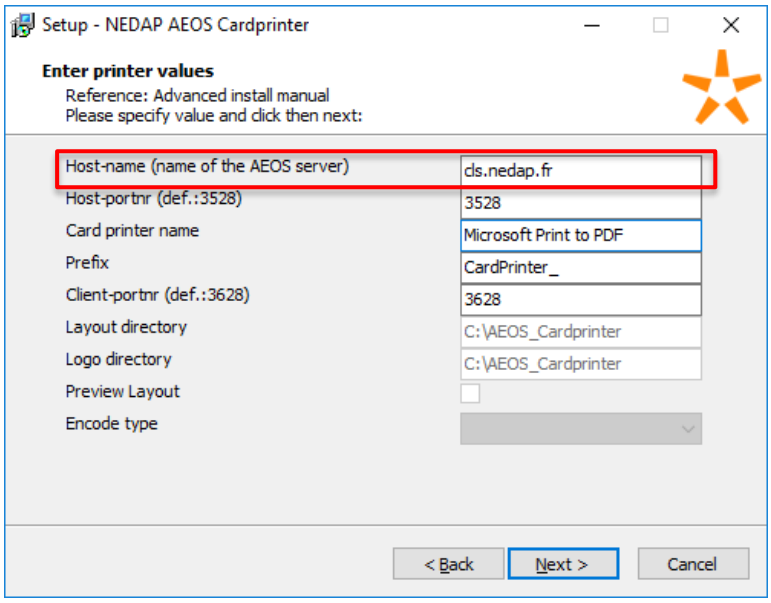
4.6. AEOS Capture – AEOS Cardprinter

- AEOS Capture and AEOS Cardprinter are connected as a client on the network:

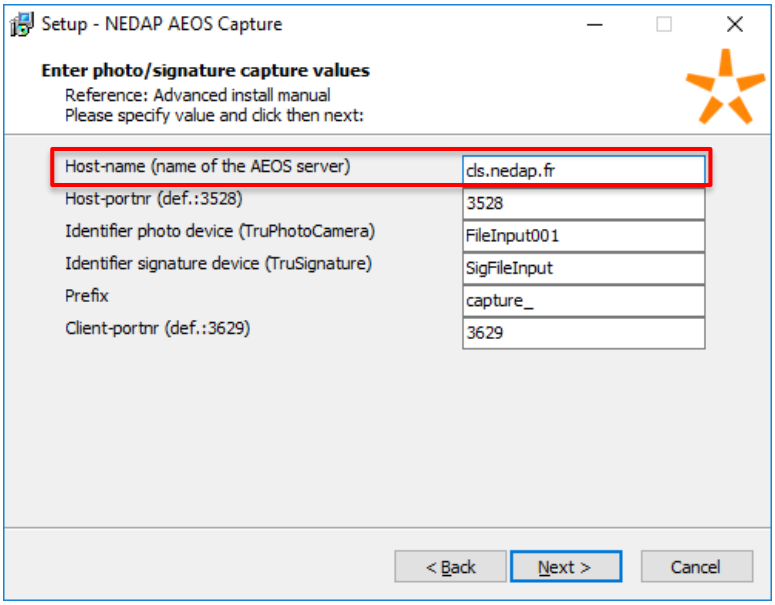


- Launch the setup and define the cluster name "cls.nedap.fr"

AEOS Cardprinter:



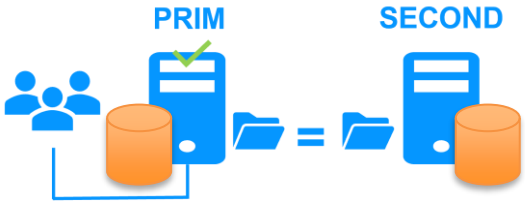
AEOS Capture:



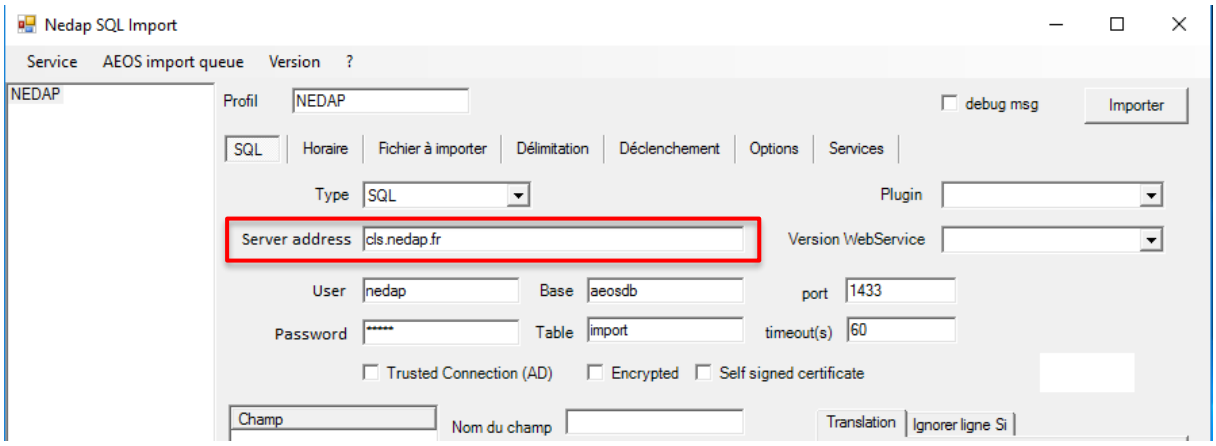
- Check the presence of applications in the taskbar

4.7. Nedap SQL import

- The Nedap SQL Import utility is installed on each server with a single one active:

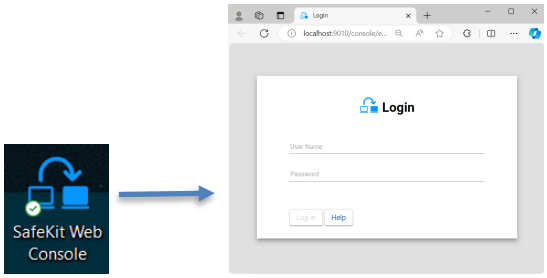


- Define the profile(s) with the cluster name “cls.nedap.fr”

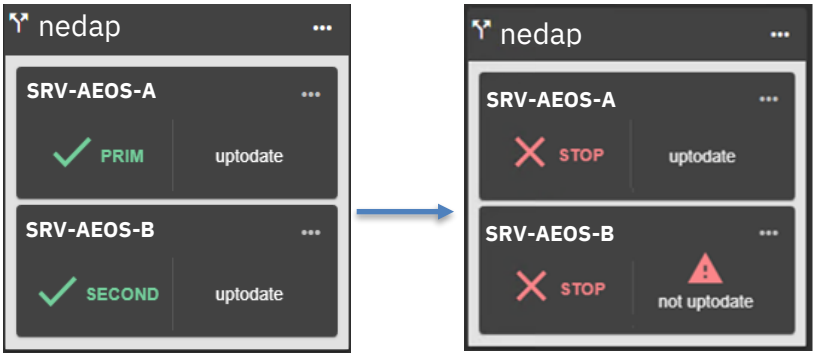


Important:

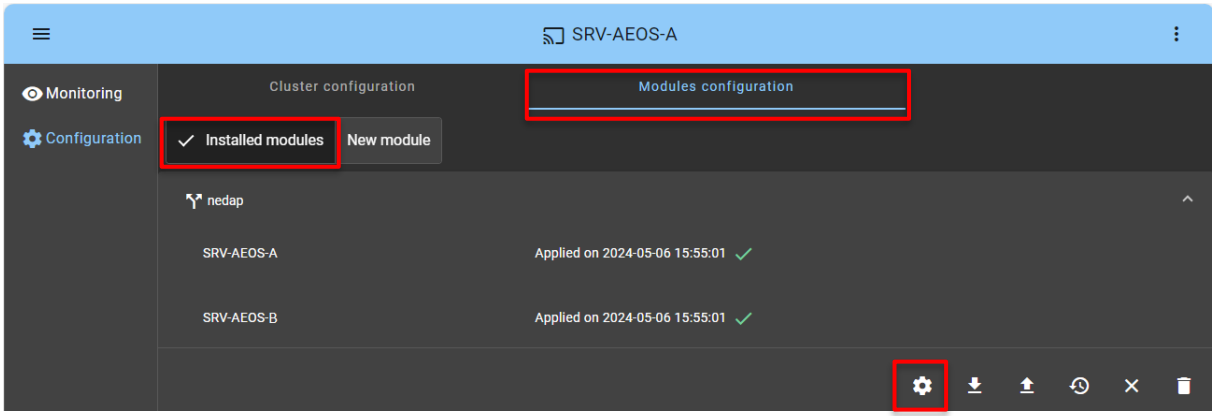
- Perform this step on both servers A & B
- Start the SafeKit console and authenticate.



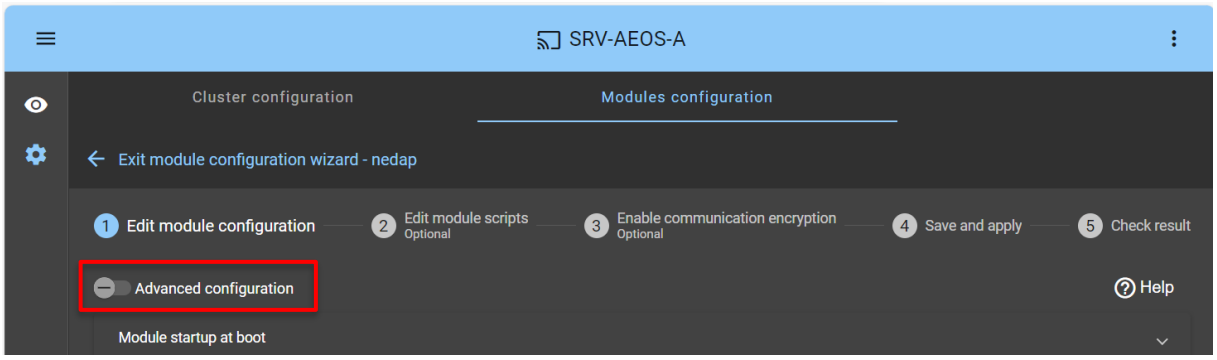
- Before reconfiguring the nedap module, first stop it. Stop first the SECOND to avoid a failover. Use the "Stop" command in "..."



- Click on "Modules configuration" tab → "Installed Modules" → nedap configure icon



- Click on "Advanced configuration" to access userconfig.xml

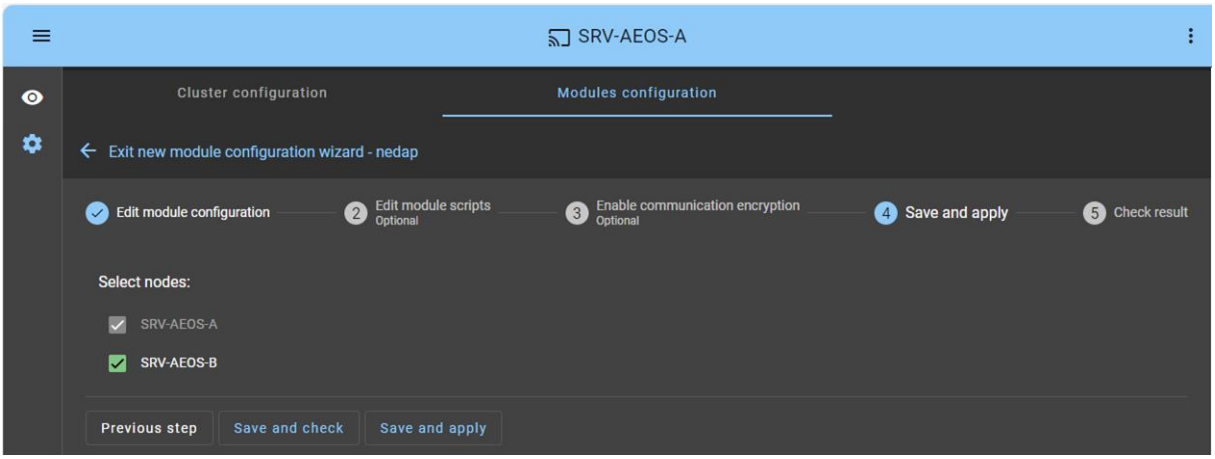


- In userconfig.xml, add in the **SERVICES** macro at the end and separated by a comma: **NSI_Service**
- Uncomment the replication of the Nedap SQL Import directory to enable profile replication (optional). And configure the process monitoring of NSI_Service.exe (optional, still in comment in the screenshot).

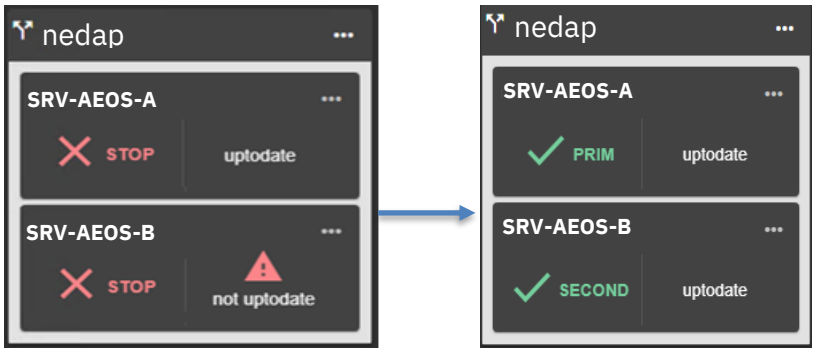
conf/userconfig.xml

```
XML*
    <!-- Define the name or IP address of your virtual server -->
    <!-- File Replication Configuration -->
    <!-- Adapt with the directory of your SQL Server database and logs -->
    <rfs>
      <replicated dir="C:\Program Files\Microsoft SQL
Server\MSSQL13.MSSQLSERVER\MSSQL\Log"/>
      <replicated dir="C:\Program Files\Microsoft SQL
Server\MSSQL13.MSSQLSERVER\MSSQL\DATA"/>
      <replicated dir="C:\AEOS\data\aemon\configurations"/>
      <!--
      <replicated dir="C:\AEOS-aepu\data\aepu" />
      <replicated dir="C:\Program Files (x86)\NEDAP\NedapSqlImport\Profil" />
      <replicated dir="C:\Program Files (x86)\NEDAP\NedapSqlExport\Profil" />
      <replicated dir="C:\Program Files\AppVision 4\Configurations" />
      -->
    </rfs>
    <!-- Software Error Detection Configuration -->
    <errd polltimer="10">
      <!-- AEOS process -->
      <proc name="AEOS_appl.exe" class="prim" action="restart"/>
      <!-- SQL Server process -->
      <proc name="sqlservr.exe" action="restart" class="prim"/>
      <!-- AEOS aepu process -->
      <!-- <proc name="AEOS_aepu.exe" action="restart" class="prim" /> -->
      <!-- Nedap SQL import process -->
      <!-- <proc name="NSI_service.exe" action="restart" class="prim" /> -->
      <!-- Nedap SQL export process -->
      <!-- <proc name="NSX_service.exe" action="restart" class="prim" /> -->
      <!-- AppVision process -->
      <!-- <proc name="AppServer.exe" action="restart" class="prim" /> -->
    </errd>
    <!-- User scripts activation -->
    <user/>
  </service>
</safe>
```

- Click on "Save and apply" to reconfigure the module on both nodes.



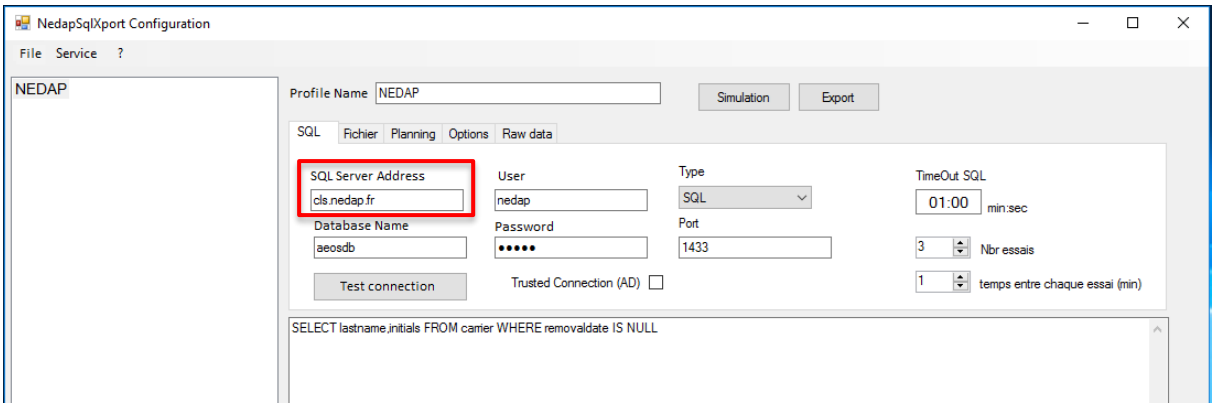
- Restart the nedap module with the "Start" command in "..."



4.8. Nedap SQL export

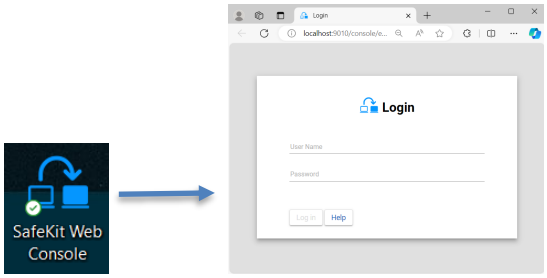
- The Nedap SQL Export utility is installed on each server with a single one active:

- Define the profile(s) with the cluster name “cls.nedap.fr”

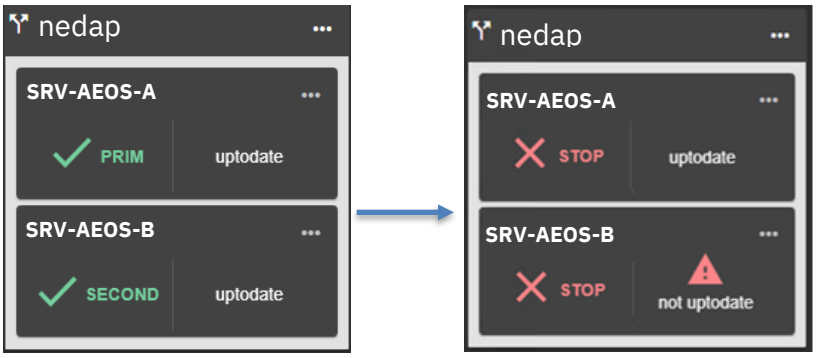


Important:

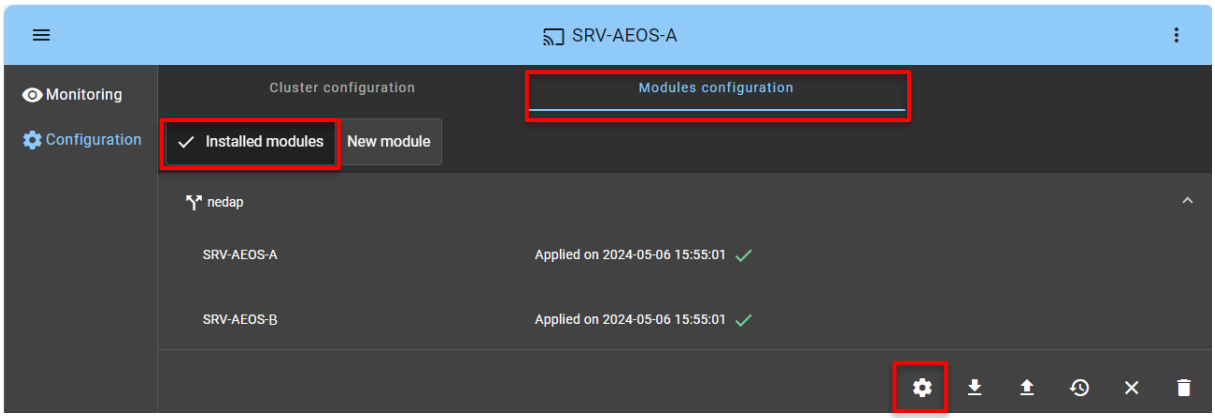
- Perform this step on both servers A & B
- Start the SafeKit console and authenticate.



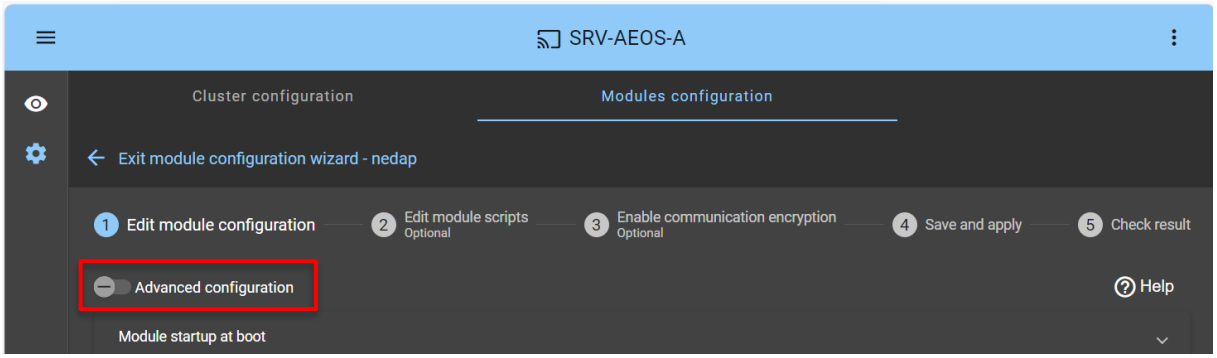
- Before reconfiguring the nedap module, first stop it. Stop first the SECOND to avoid a failover. Use the "Stop" command in "..."



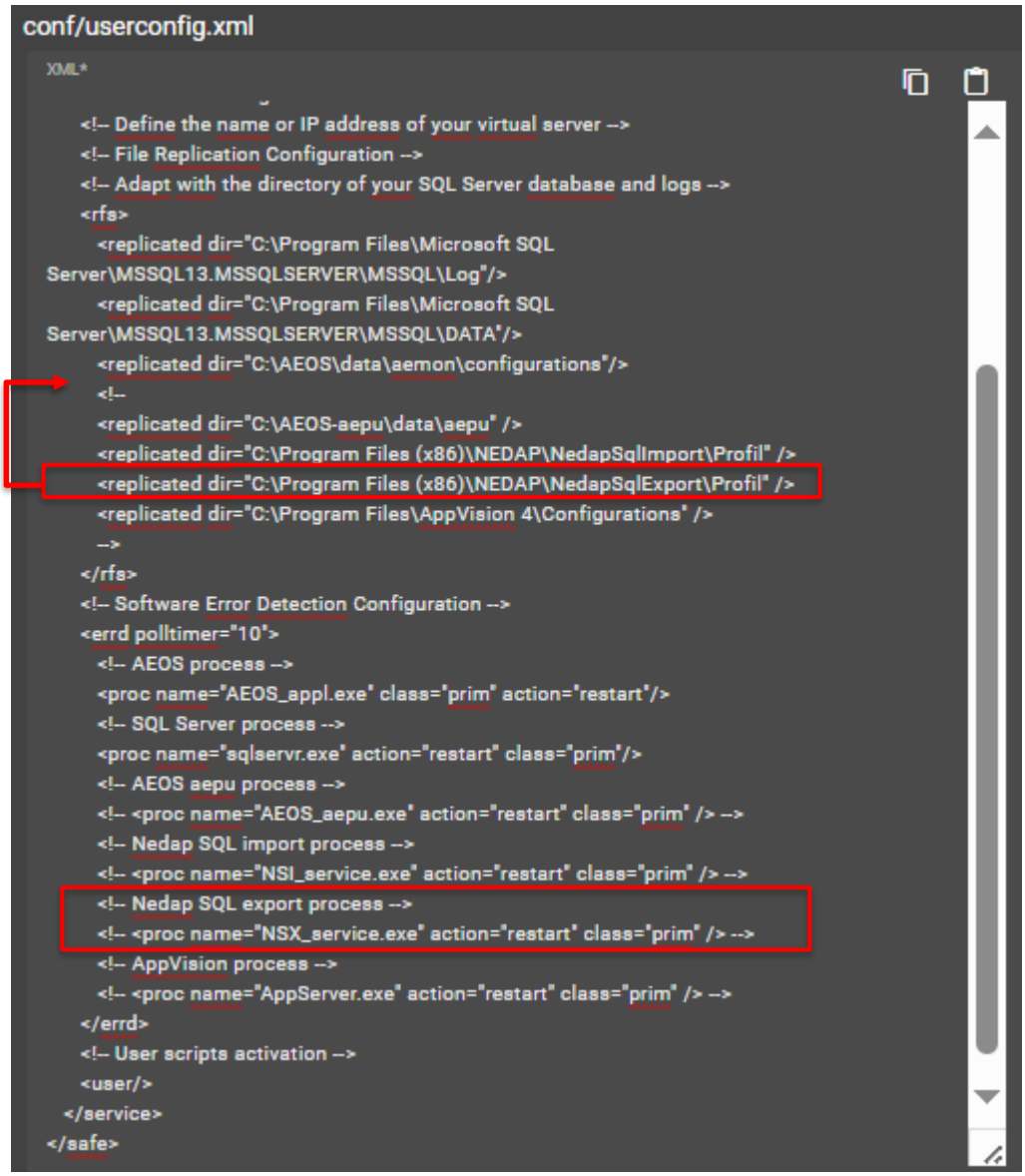
- Click on "Modules configuration" tab → "Installed Modules" → nedap configure icon



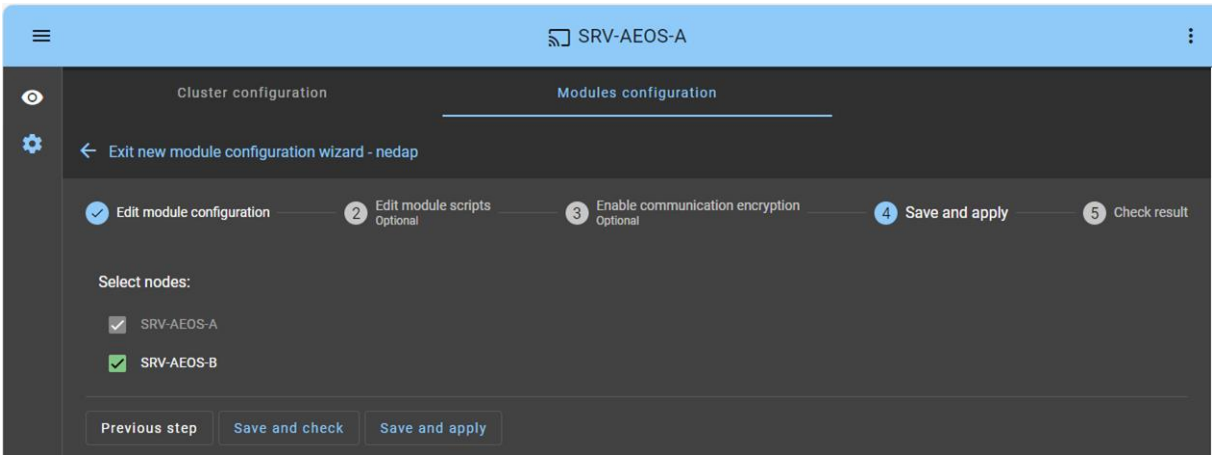
- Click on "Advanced configuration" to access userconfig.xml



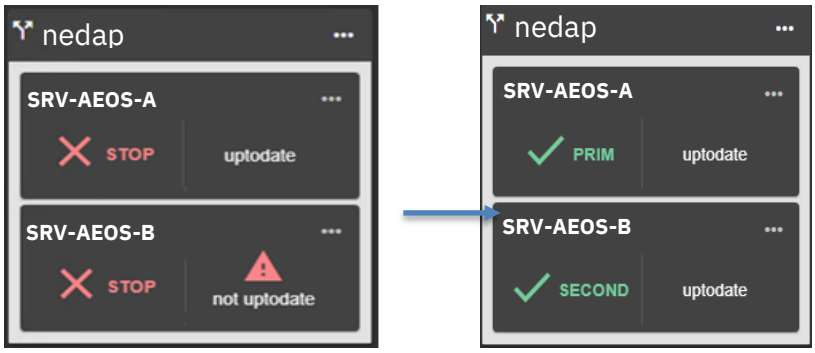
- In userconfig.xml, add in the **SERVICES** macro at the end and separated by a comma: **NSX_Service**
- Uncomment the replication of the Nedap SQL Export directory to enable profile replication (optional). And configure the process monitoring of NSX_Service.exe (optional, still in comment in the screenshot).



- Click on "Save and apply" to reconfigure the module on both nodes.

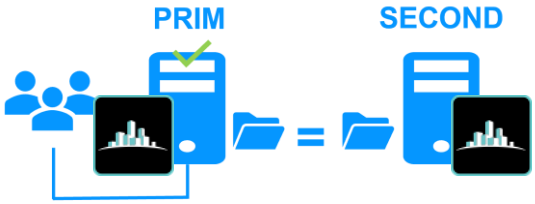


- Restart the nedap module with the "Start" command in "..."

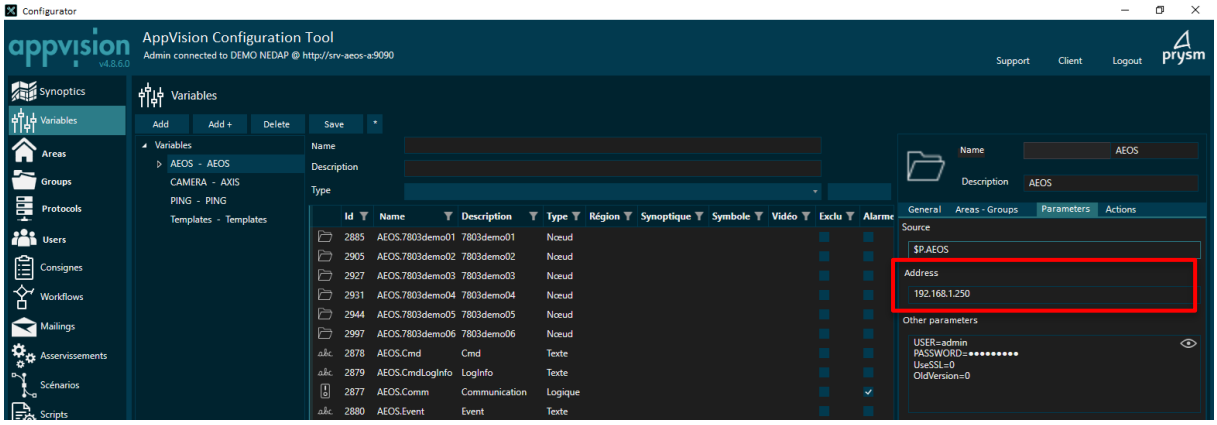


4.9. AppVision

- The AppVision hypervisor is installed on each server with a single one active:

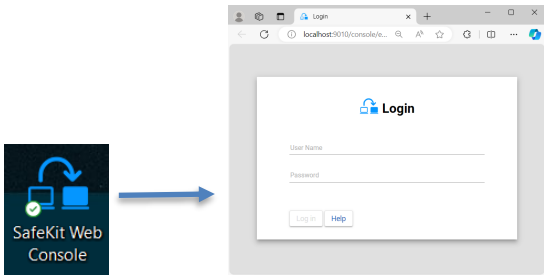


- Set the AppDriverAEOS driver connection with the cluster IP address 192.168.1.250

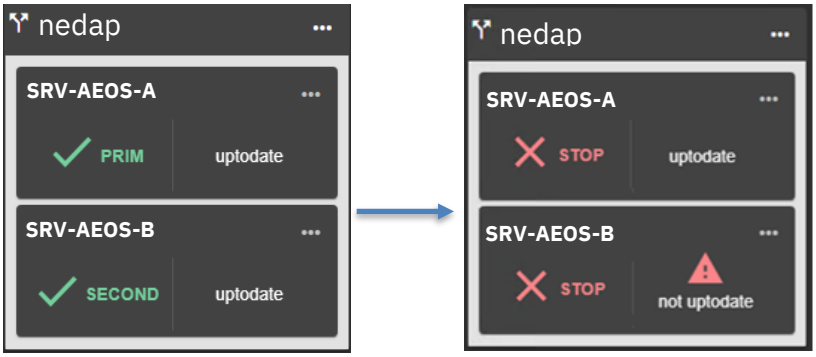


Note: The databases must be in SQL Server and the connection can be done locally or on cls.nedap.fr (cluster name/virtual IP)

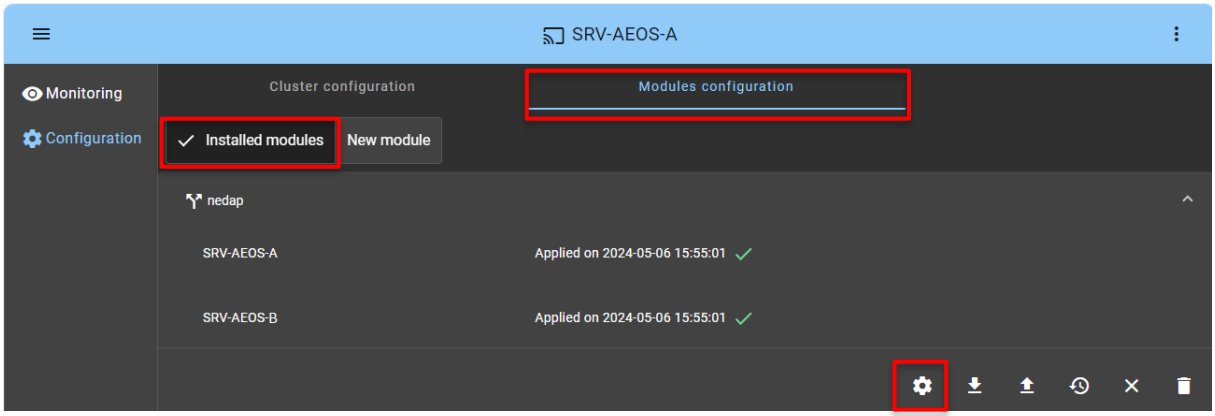
- Start the SafeKit console and authenticate.



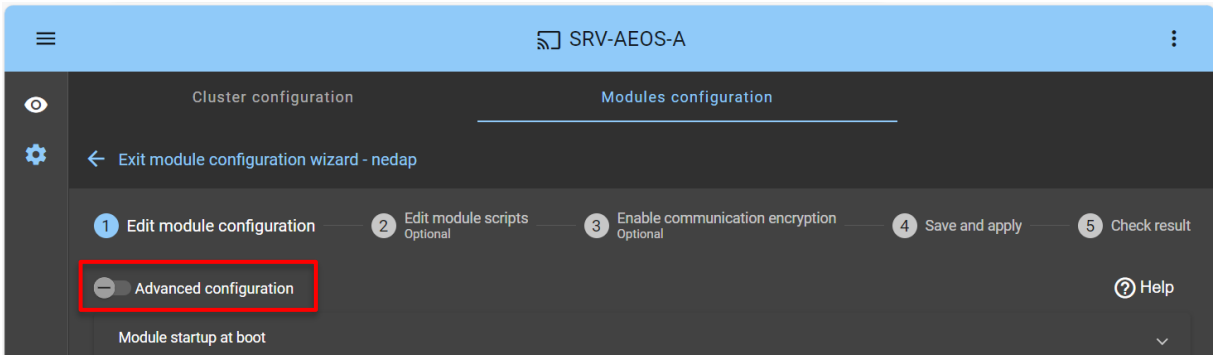
- Before reconfiguring the nedap module, first stop it. Stop first the SECOND to avoid a failover. Use the "Stop" command in "..."



- Click on "Modules configuration" tab → "Installed Modules" → nedap configure icon



- Click on "Advanced configuration" to access userconfig.xml



- In userconfig.xml, add in the **SERVICES** macro at the end and separated by a comma:

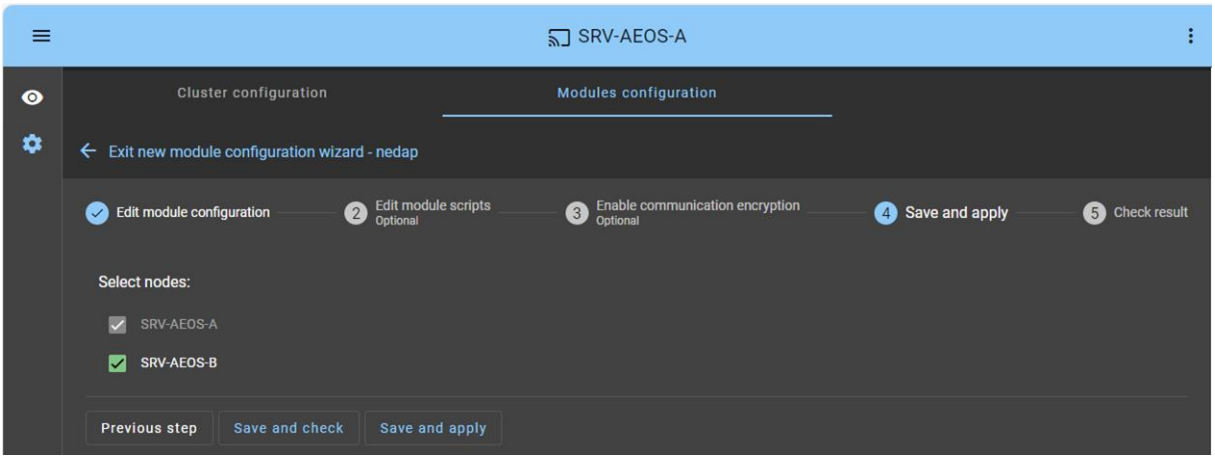
  AppVision Service

- Uncomment the replication of the AppVision Configurations directory to allow replication of plans, layouts, etc. (optional). And configure the process monitoring of AppServer.exe (optional, still in comment in the screenshot).

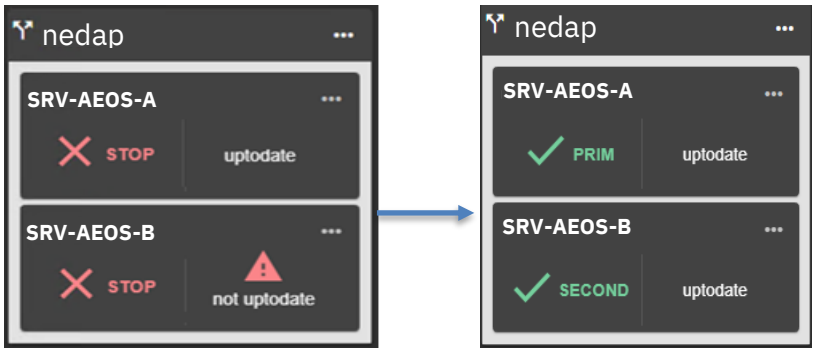
conf/userconfig.xml

```
XML*
    <!-- Define the name or IP address of your virtual server -->
    <!-- File Replication Configuration -->
    <!-- Adapt with the directory of your SQL Server database and logs -->
    <rfs>
      <replicated dir="C:\Program Files\Microsoft SQL
Server\MSSQL13.MSSQLSERVER\MSSQL\Log"/>
      <replicated dir="C:\Program Files\Microsoft SQL
Server\MSSQL13.MSSQLSERVER\MSSQL\DATA"/>
      <replicated dir="C:\AEOS\data\aemon\configurations"/>
      <!--
      <replicated dir="C:\AEOS-aepu\data\aepu" />
      <replicated dir="C:\Program Files (x86)\NEDAP\NedapSqlImport\Profil" />
      <replicated dir="C:\Program Files (x86)\NEDAP\NedapSqlExport\Profil" />
      <replicated dir="C:\Program Files\AppVision 4\Configurations" />
      -->
    </rfs>
    <!-- Software Error Detection Configuration -->
    <errd polltimer="10">
      <!-- AEOS process -->
      <proc name="AEOS_appl.exe" class="prim" action="restart"/>
      <!-- SQL Server process -->
      <proc name="sqlservr.exe" action="restart" class="prim"/>
      <!-- AEOS aepu process -->
      <!-- <proc name="AEOS_aepu.exe" action="restart" class="prim" /> -->
      <!-- Nedap SQL import process -->
      <!-- <proc name="NSI_service.exe" action="restart" class="prim" /> -->
      <!-- Nedap SQL export process -->
      <!-- <proc name="NSX_service.exe" action="restart" class="prim" /> -->
      <!-- AppVision process -->
      <!-- <proc name="AppServer.exe" action="restart" class="prim" /> -->
    </errd>
    <!-- User scripts activation -->
    <user/>
  </service>
</safe>
```

- Click on "Save and apply" to reconfigure the module on both nodes.

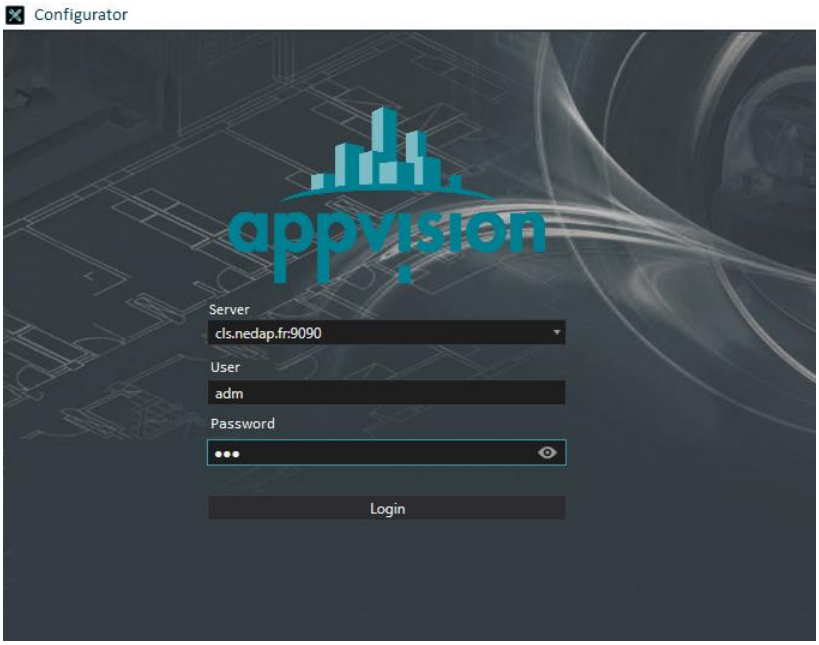


- Restart the nedap module with the "Start" command in "..."

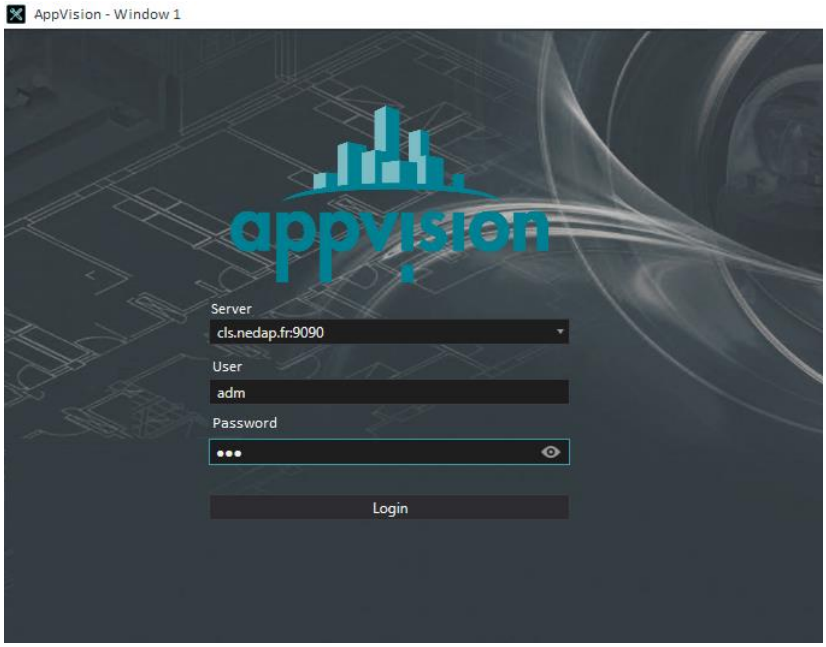


- Client tools must connect to “cls.nedap.fr” (virtual IP)

AppVision configurator:



AppVision client:



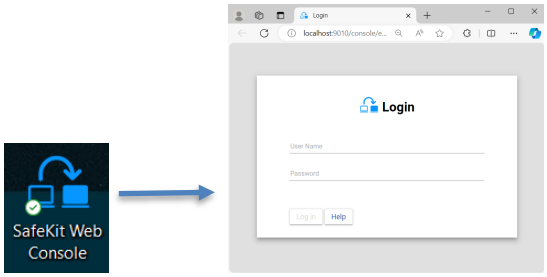
4.10. SQL script

The SQL script will allow you to modify a value in a table before starting the application. For example for the operation of TrakaWeb in “Active & Passive Switchover” mode.

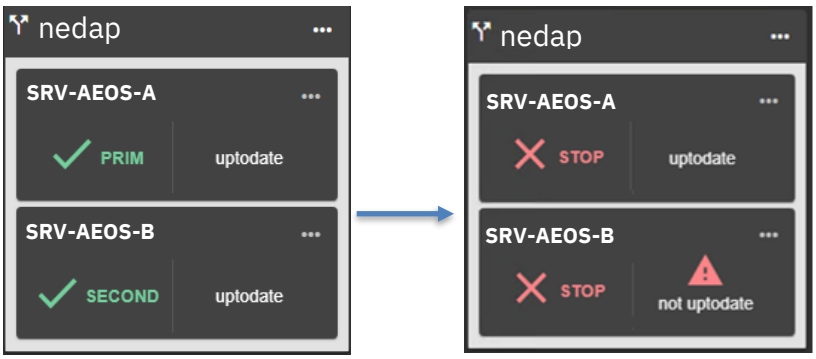
- Place the SQL script in a folder C:\safekit\script\ClusterTraka.sql (for example)

Note: The details of the script are documented in “TD0183 - TrakaWEB Active & Passive Switchover - V1_4.pdf”.

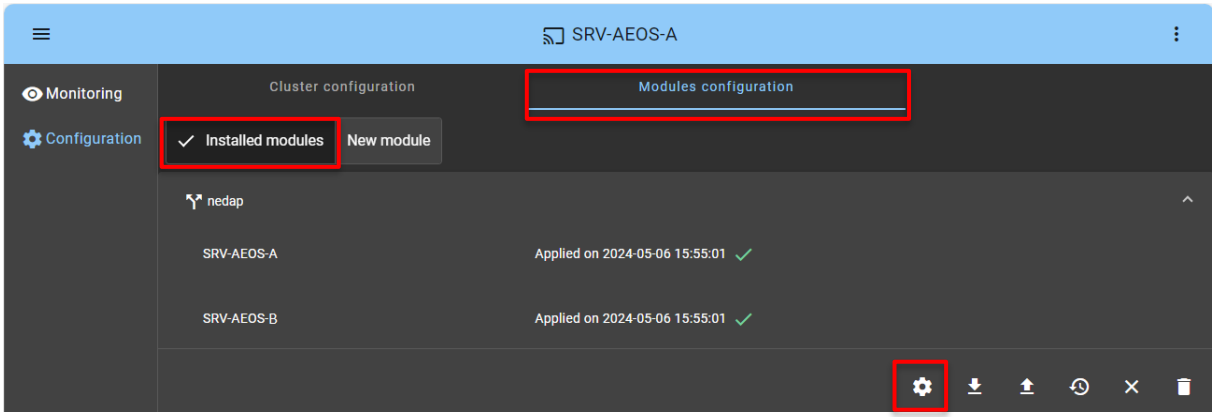
- Start the SafeKit console and authenticate.



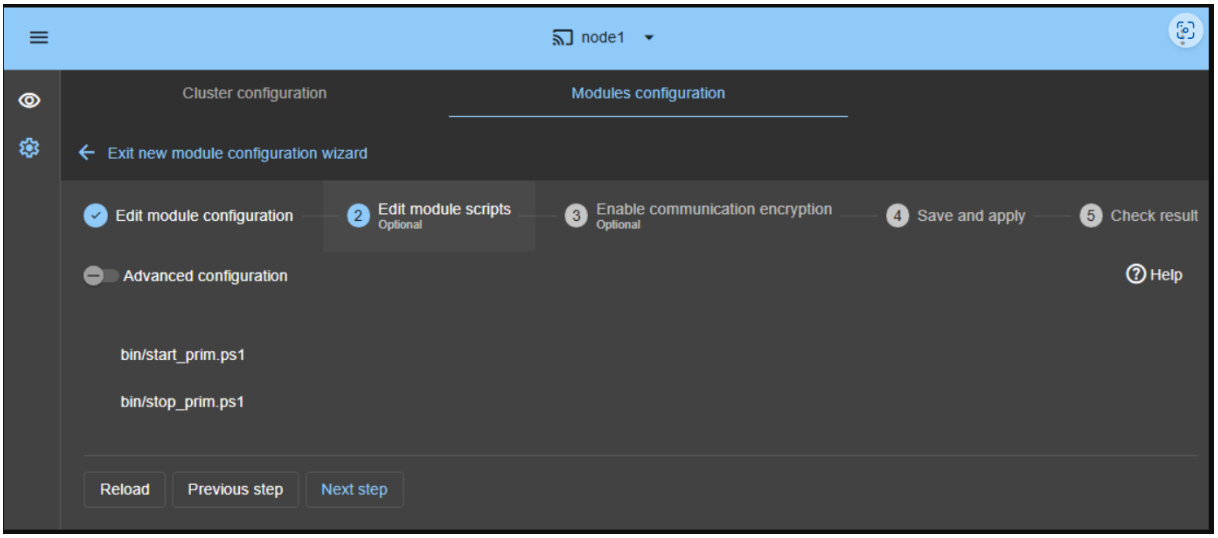
- Before reconfiguring the nedap module, first stop it. Stop first the SECOND to avoid a failover. Use the "Stop" command in "..."



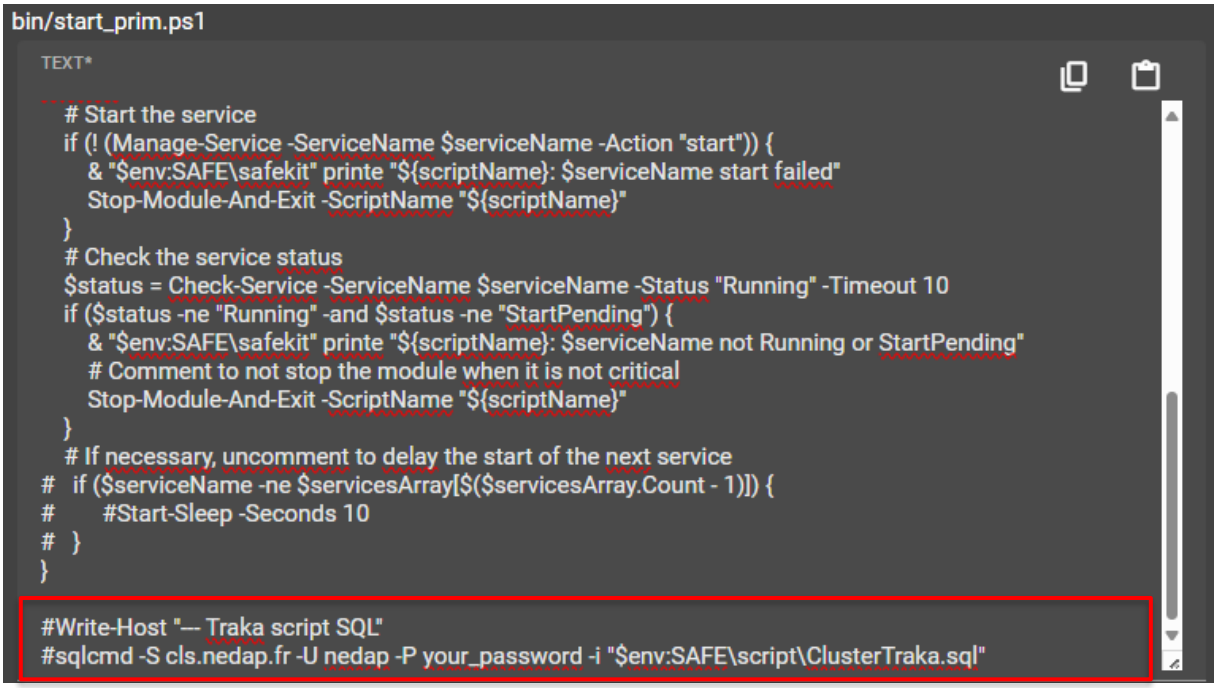
- Click on "Modules configuration" tab → "Installed Modules" → nedap configure icon



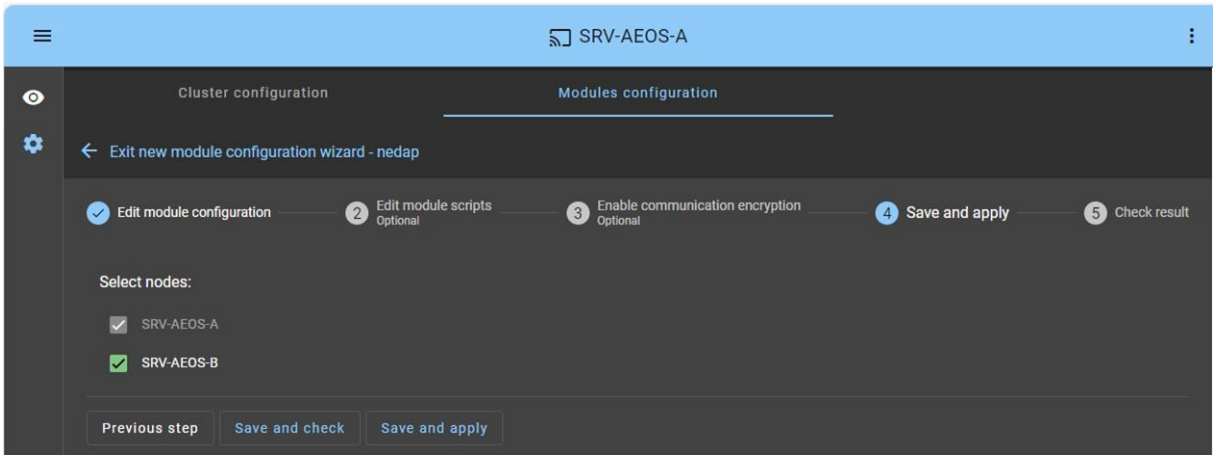
- Edit module scripts: click on start_prim.ps1.
  - Note that start_prim.ps1 starts all services in the order specified in the SERVICES list, while stop_prim.ps1 stops all services in the reverse order.



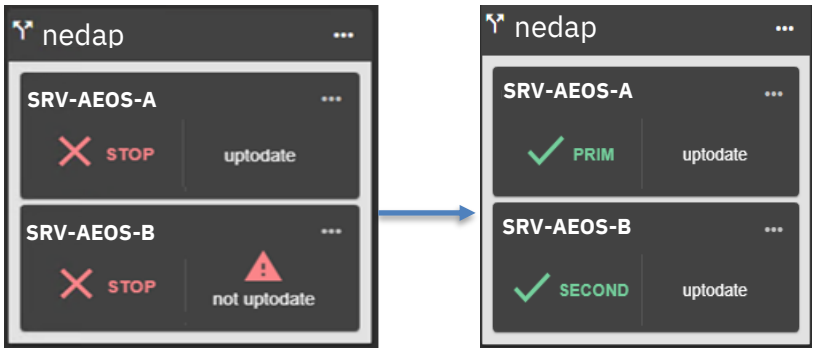
- Edit the script start_prim.ps1 and **uncomment** the two lines below (remove **#**).



- Click on "Save and apply" to reconfigure the module on both nodes.



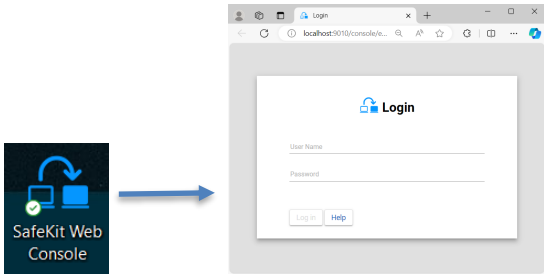
- Restart the nedap module with the "Start" command in "..."



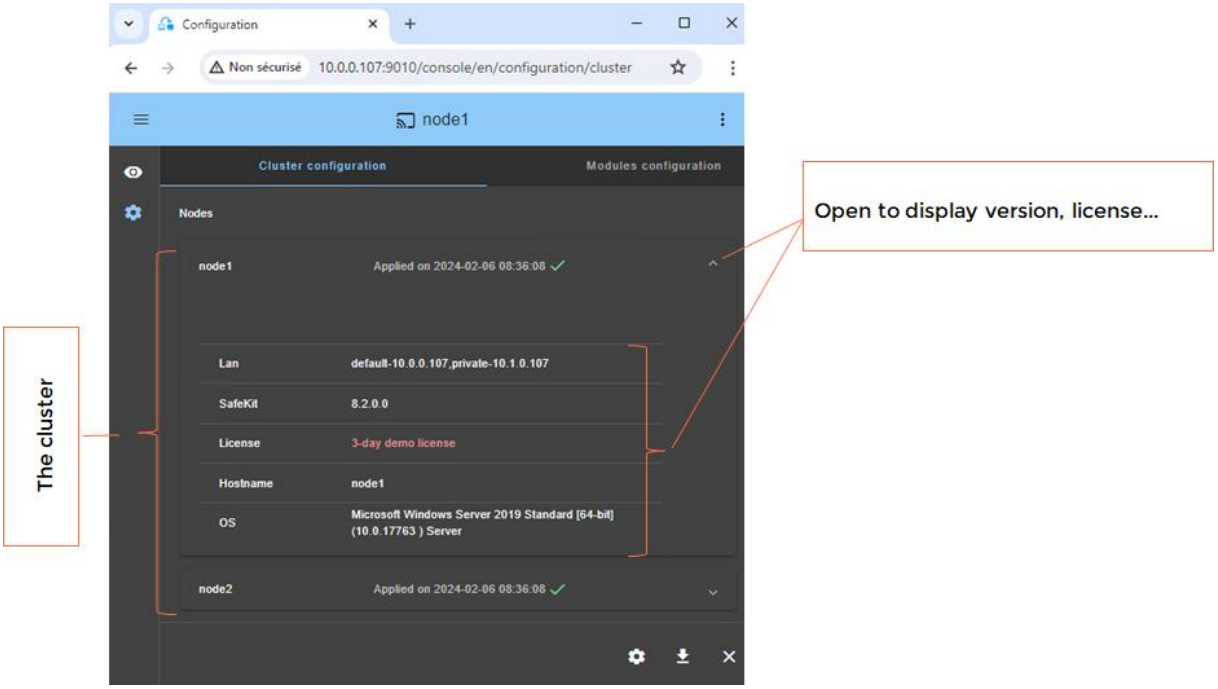
5. Miscellaneous SafeKit

5.1. Licence

- Start the SafeKit console and authenticate.



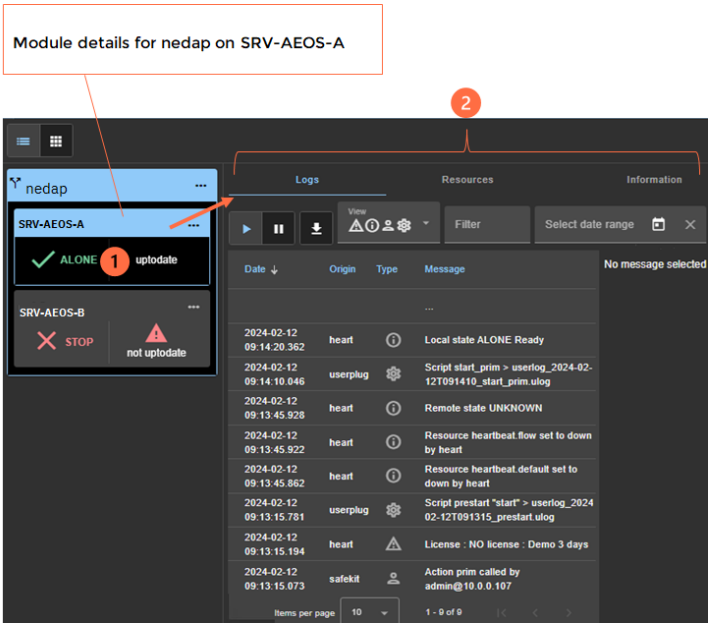
- Click on "Cluster configuration" tab



5.2. Logs

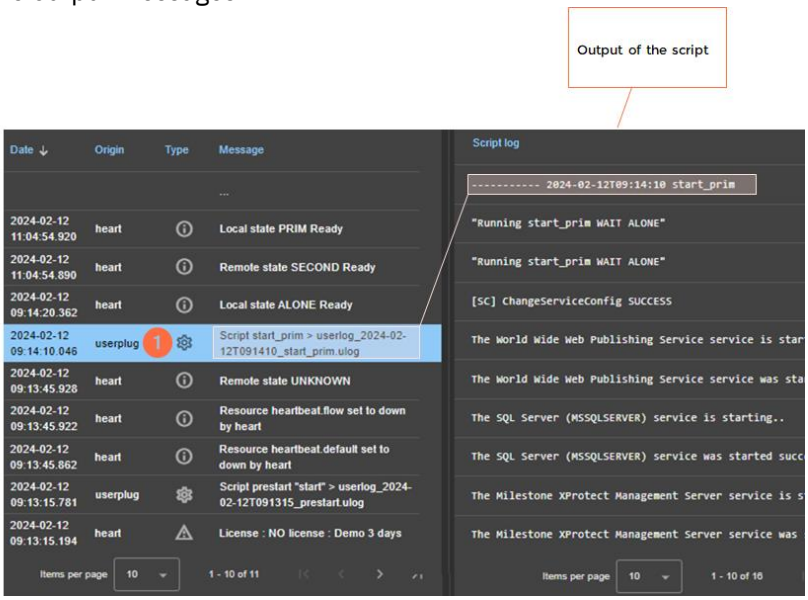
- Click on SRV-AEOS-A to see the log of events

1. Click on the server to display its detailed status
   - It is highlighted with a blue color
   - The module details are displayed
2. Click on the tab to visualize module logs, resources or node information



- Click on a Script message to see the output messages

1. Click on a S(cript) message
   - output of the script execution is displayed



5.3. Backup

- Back up the following elements to allow restoration if necessary:
  - C:\safekit\var\cluster\cluster.xml
  - C:\safekit\Application_Modules\generic: original configuration (*.safe)
  - C:\safekit\modules\lastconfig: the last 3 configurations (*.safe)
  - C:\safekit\web\conf\ (user authentication, https certificate...)

Notes:

- The files are available on both servers.
- A ".safe" file is a zip file containing the module configuration: userconfig.xml and scripts.
- A ".safe" file can be reinstalled with the SafeKit console.

5.4. More information on SafeKit

- SafeKit quick installation guide with Nedap (nedap.safe mirror module) - Evidian – the article includes a free trial and the nedap.safe module.
- SafeKit quick installation guide with Hyper-V (hyperv.safe mirror module) - Evidian – an alternative solution where Nedap AEOS is put inside a virtual machine fully replicated and restarted by SafeKit. No need to define services, application folders and virtual IP per application in this solution. Other applications can be put in other VMs also replicated and restarted by SafeKit (active-active cluster).
- SafeKit on-line training - Evidian – a set of videos and demonstrations of SafeKit.

6. Document history

Date	Modification	Version	Author
08/03/2024	Document creation	1	D.S.
10/05/2024	Translation in English + Adaptation to SafeKit 8.2	2	B.R.
16/05/2025	Adaptation to SafeKit 8.2.4 (SERVICES macro)	3	B.R.

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Nedap France

8-10 Chemin d'Andrésy
95610 Eragny sur Oise
+33 (0)1 61 03 03 00
infoaeos@nedap.fr
www.nedapfrance.fr