

## Microsoft Forefront UAG – How to configure arrays in Forefront UAG

### Abstract

This is a two part article series. In part I will show you how to create an array with two Forefront UAG Servers and how to manage them. In part II I will show you how to implement Network Load Balancing (NLB) for the Forefront UAG array.

### Let's begin

In part I of this article series we will start with some basics about the Forefront UAG concepts. After that we will install a Forefront UAG with two Forefront UAG array members.

### Forefront UAG array explained

A Forefront UAG array is a combination of two or more Forefront UAG Servers which built one logical unit. An array can consist of a maximum of 50 array members and up to 8 array members if NLB is used. Reasons for deploying an array with Forefront UAG:

- Scalability - Multiple UAG servers in an array can increase capacity for throughput and number of users
- Fault tolerance - Multiple UAG servers provide the same configuration for clients accessing the array
- Failover - If a Forefront UAG array is load balanced with NLB (windows or Hardware Load Balancer) you have one entry point – the VIP (Virtual IP Address) which distributes traffic to all array members. In a non-load balanced array, each array member has a separate IP address – the DIP (Dedicated IP Address) and you must manually configure a Failover for example with DNS round robin

Each server in a Forefront UAG array shares the same configuration, including trunks, published applications and VPN configuration. Forefront UAG uses a Standalone array which doesn't requires a dedicated management Server, like the EMS (Enterprise Management Server) in Forefront TMG 2010 Enterprise arrays. The UAG / TMG configuration is stored in a local Active Directory Lightweight Directory Services (AD-LDS) instance, running on the array manager. The UAG array manager is responsible for UAG configuration changes. The configuration changes will be replicated to the other array members.

One of the array members is designated as the array manager and the array manager can be manually changed.

### Forefront UAG configuration

Now it is time to create a new Forefront UAG array.

Start the Forefront UAG MMC and click - Array Management

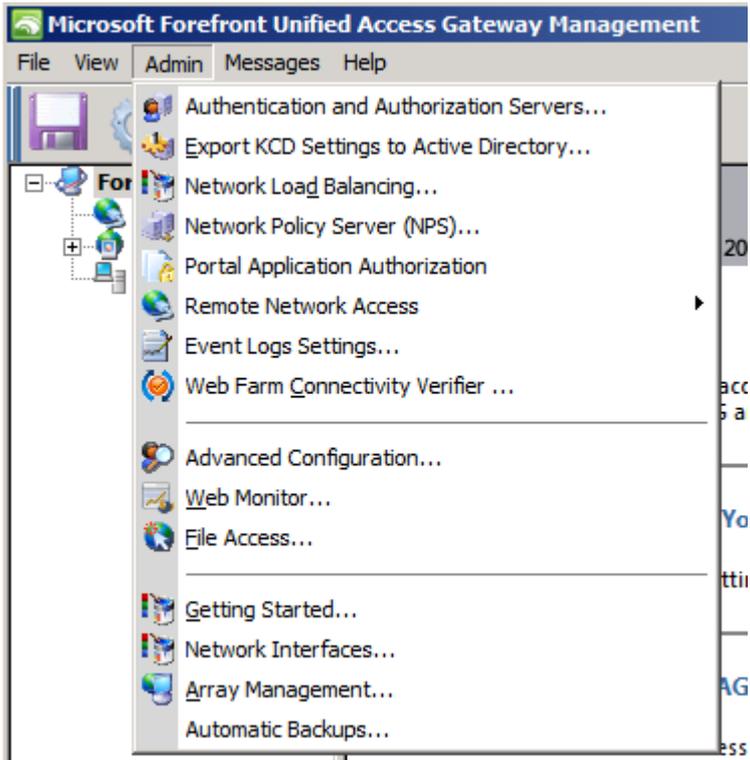


Figure 1: Start Array Management

Start the Array configuration wizard

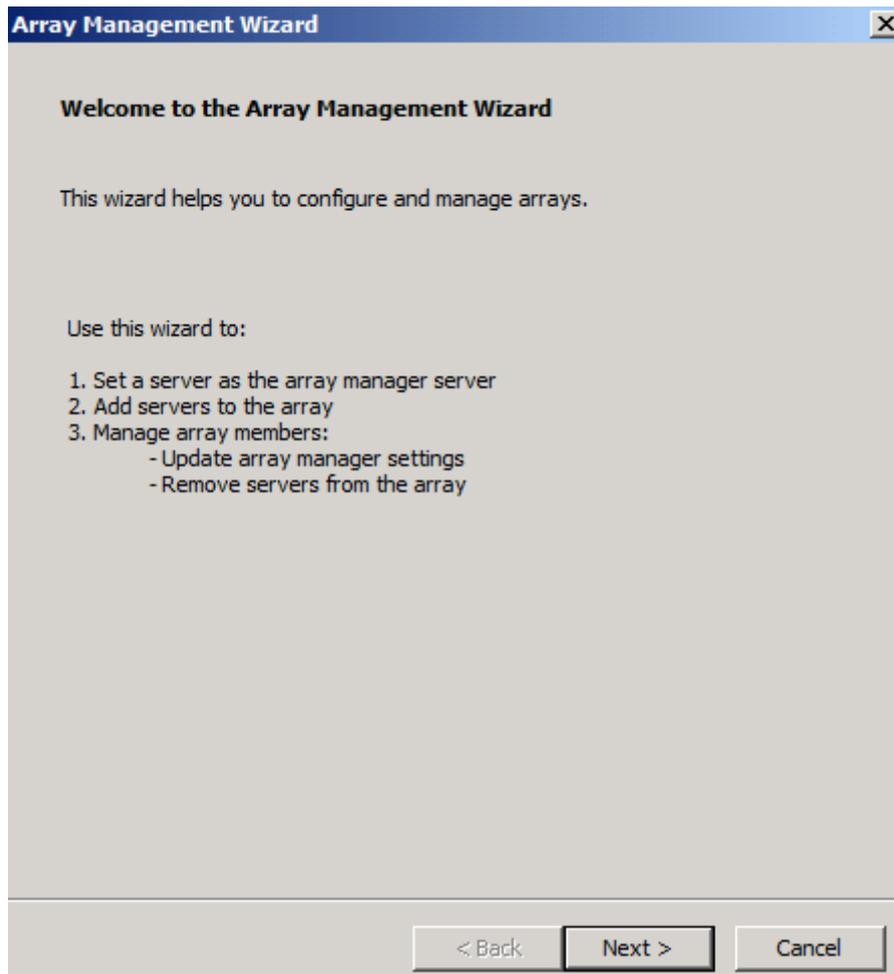


Figure 2: Array Management Wizard

Set this Server as the array manager

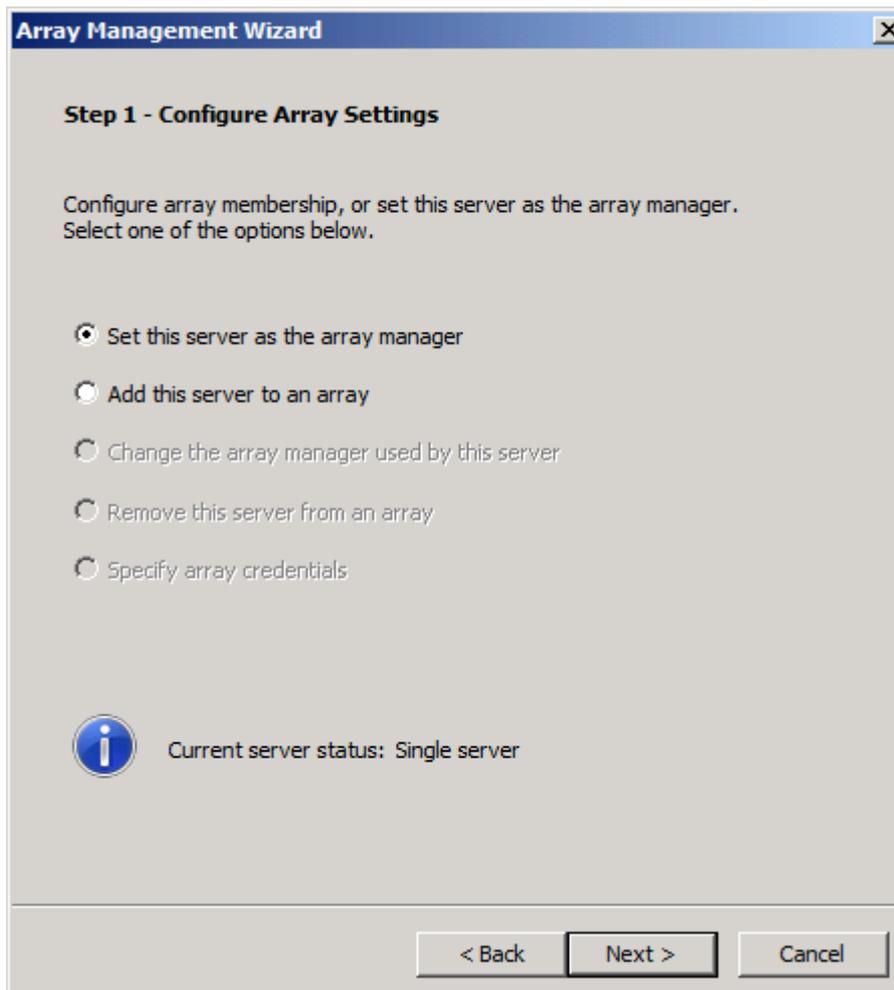


Figure 3: Array Manager

## Specify Array credentials

**Array Management Wizard**

**Step 2 - Specify Array Credentials**

Specify the credentials used to connect to storage and to retrieve server-specific settings from array members.

Credentials

User name: administrator

Password: ●●●●●●●●

Confirm password: ●●●●●●●●

Domain: DOMAIN

< Back   Next >   Cancel

Figure 4: Credentials

Add the second Forefront UAG Server to the array. This will allow later the array join from the second Forefront UAG Server.

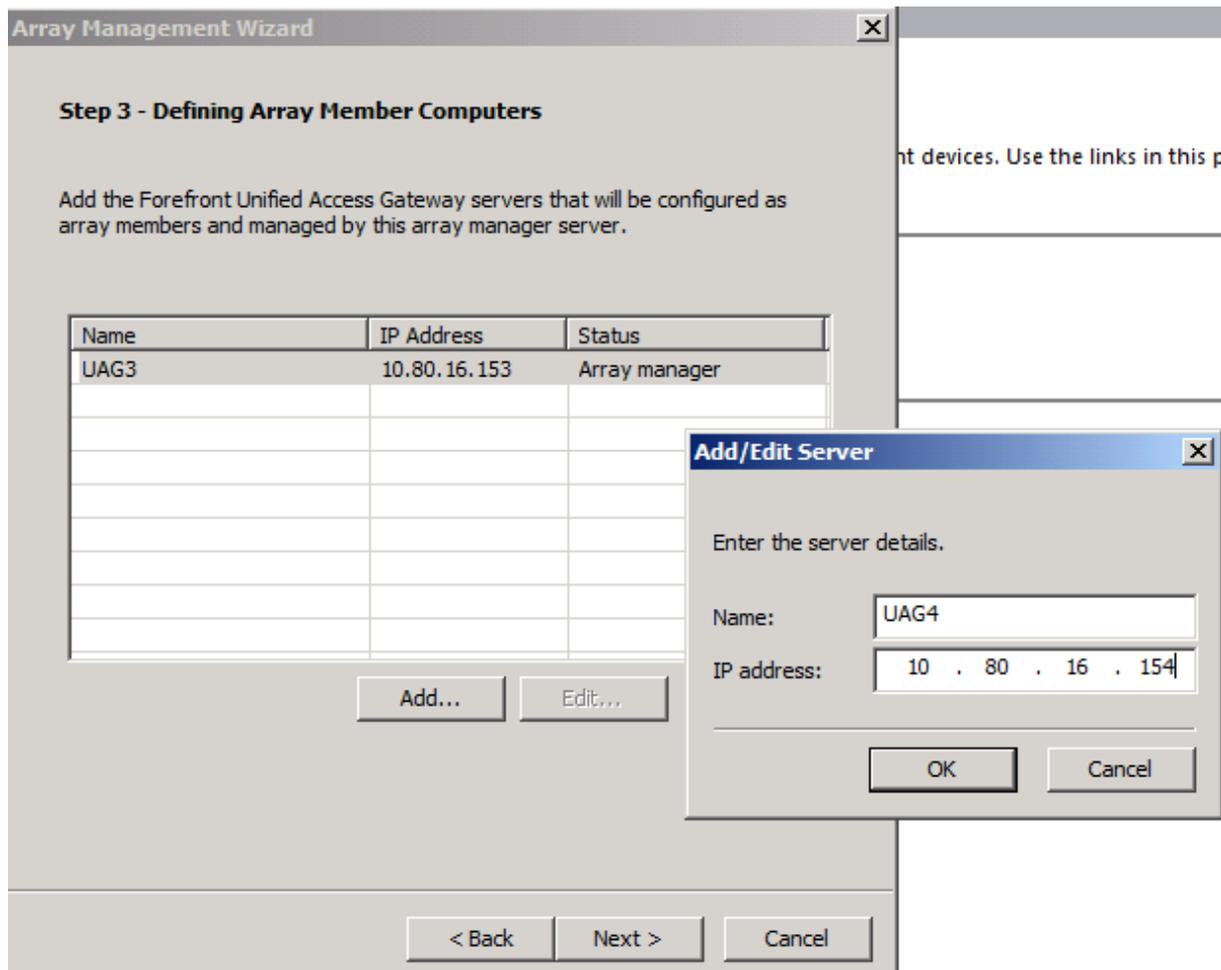


Figure 5: Add UAG4 to allow for array join

Successful array manager configuration

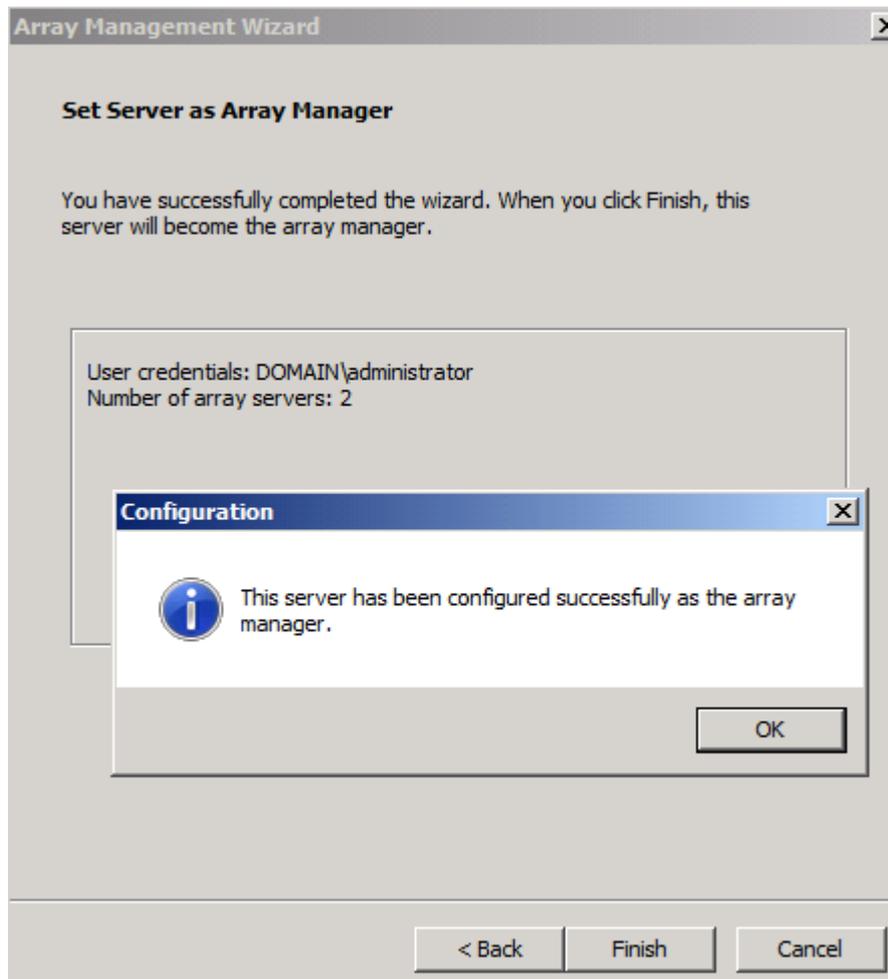


Figure 5: Successful array join

Join the second Forefront UAG Server to the array

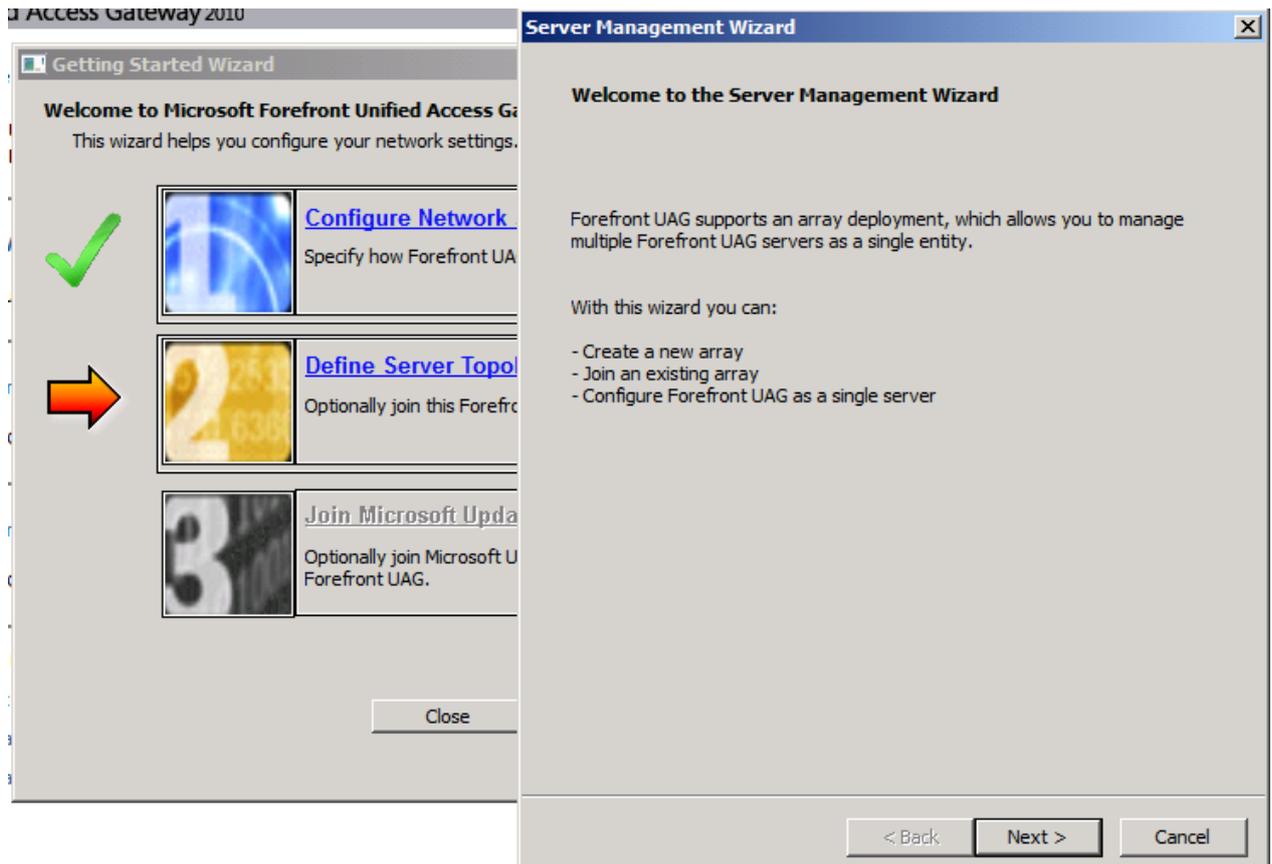


Figure 6: Join array

Make the second Forefront UAG Server a array member

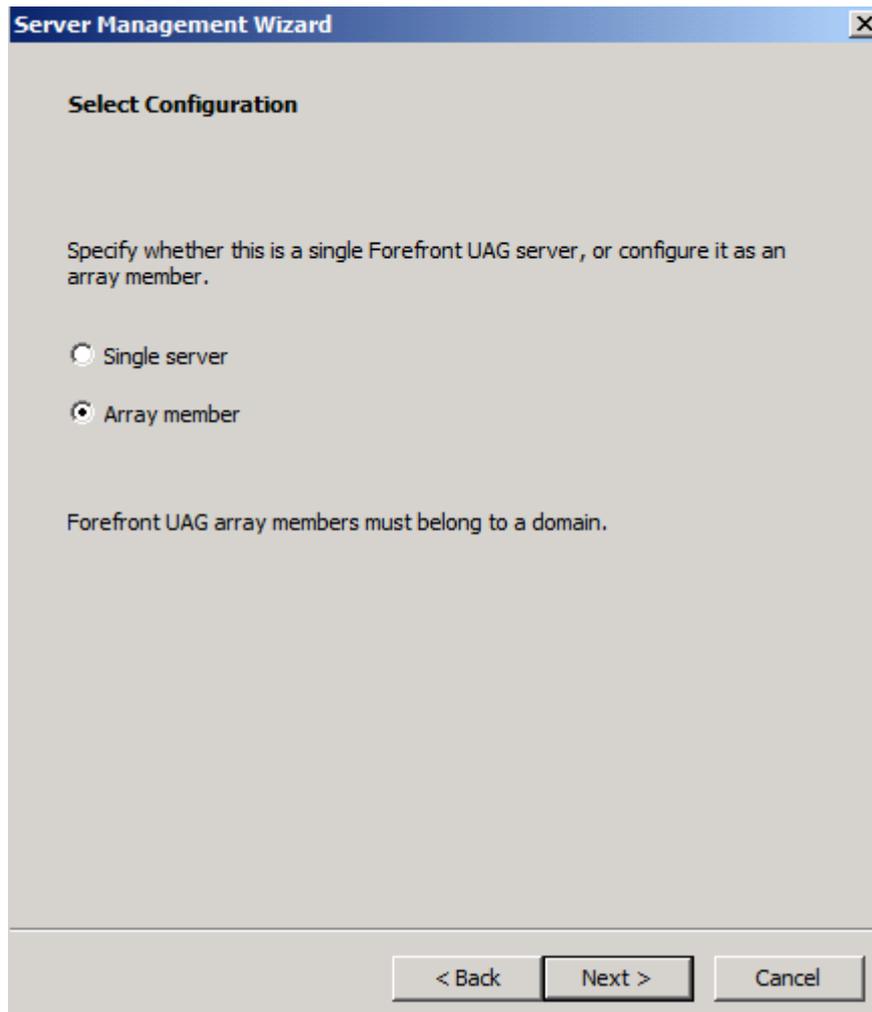


Figure 7: Become a array member

Add the Server to the array

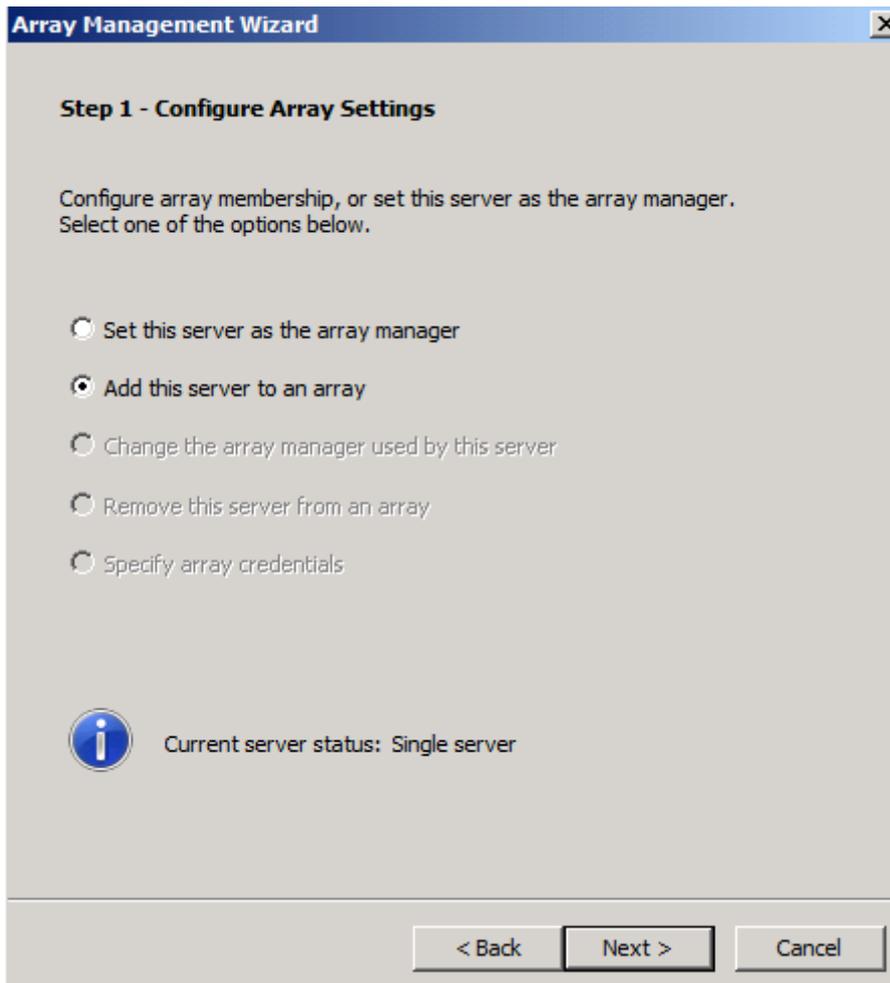
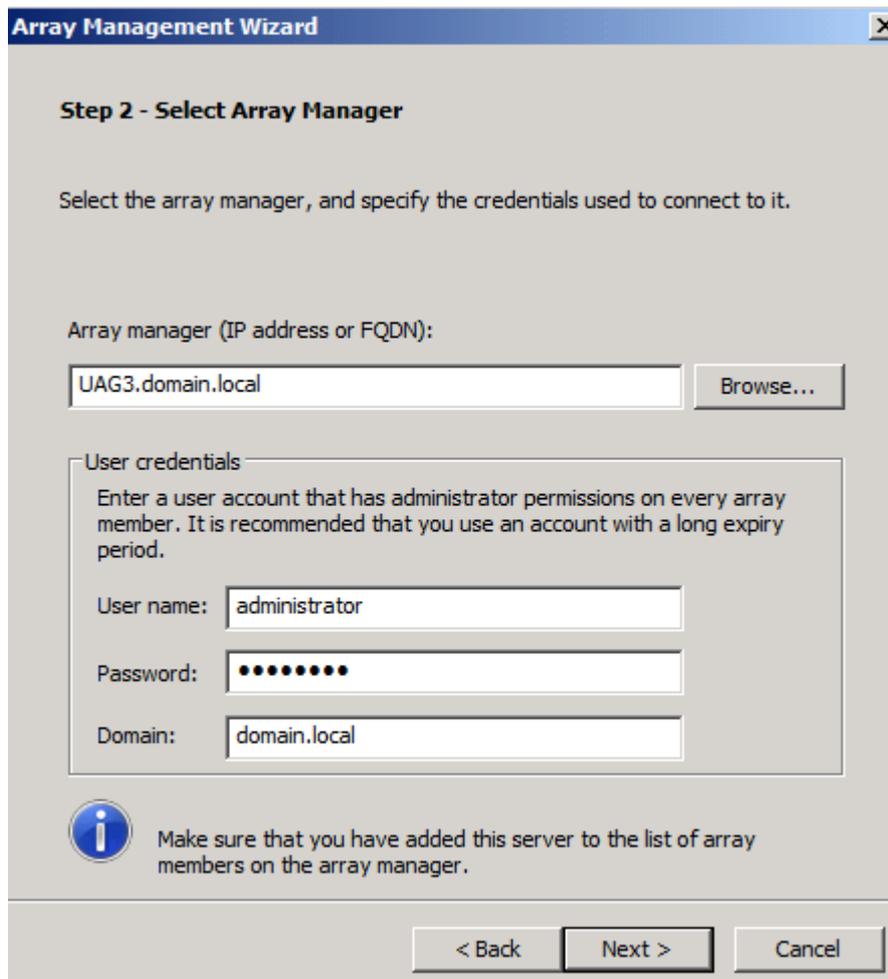


Figure 8: Add to array

Select the Array Manager (FQDN may be important for successful array join) and enter the credentials for array join.



The second Forefront UAG Server joins the array.

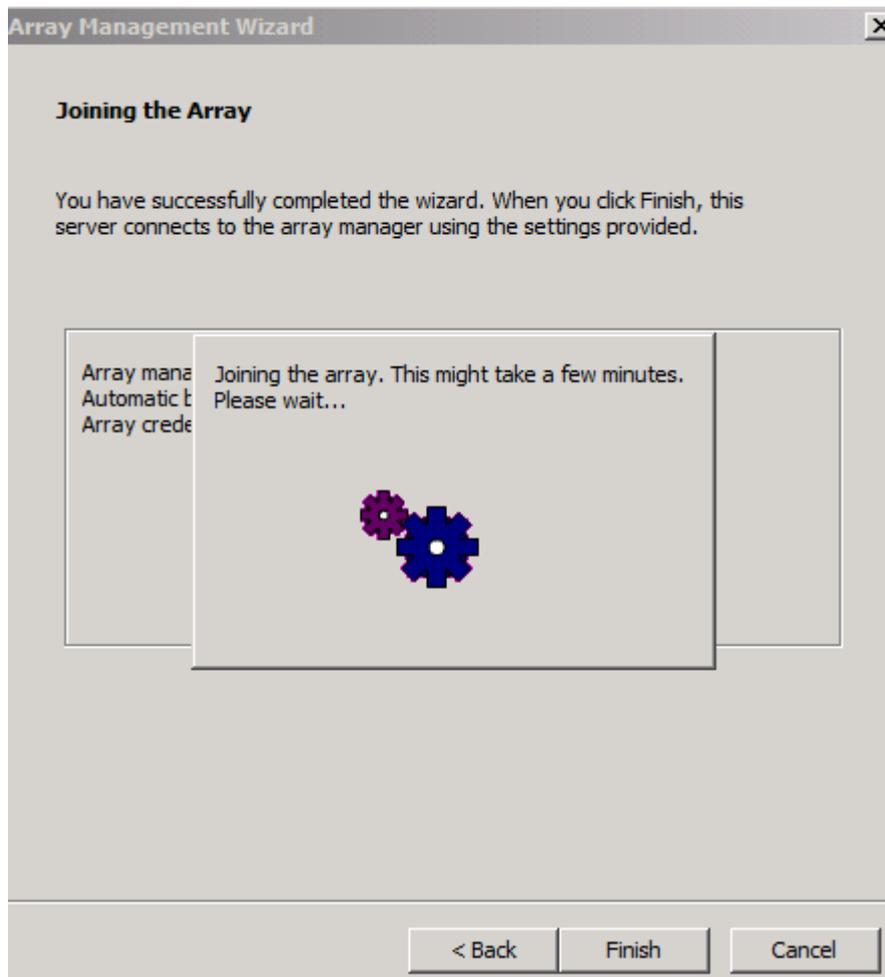


Figure 10: Array join

After array join it takes a moment until the configuration has been synced. You can see this in the Forefront UAG Activation monitor.

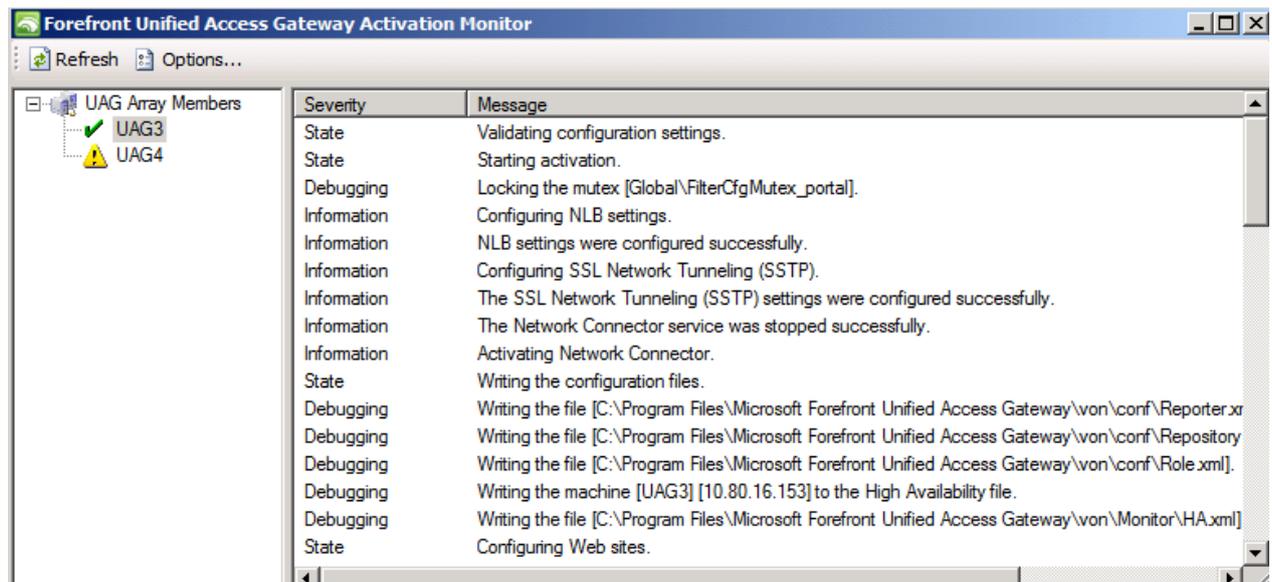


Figure 11: UAG Activation monitor

Successful array join

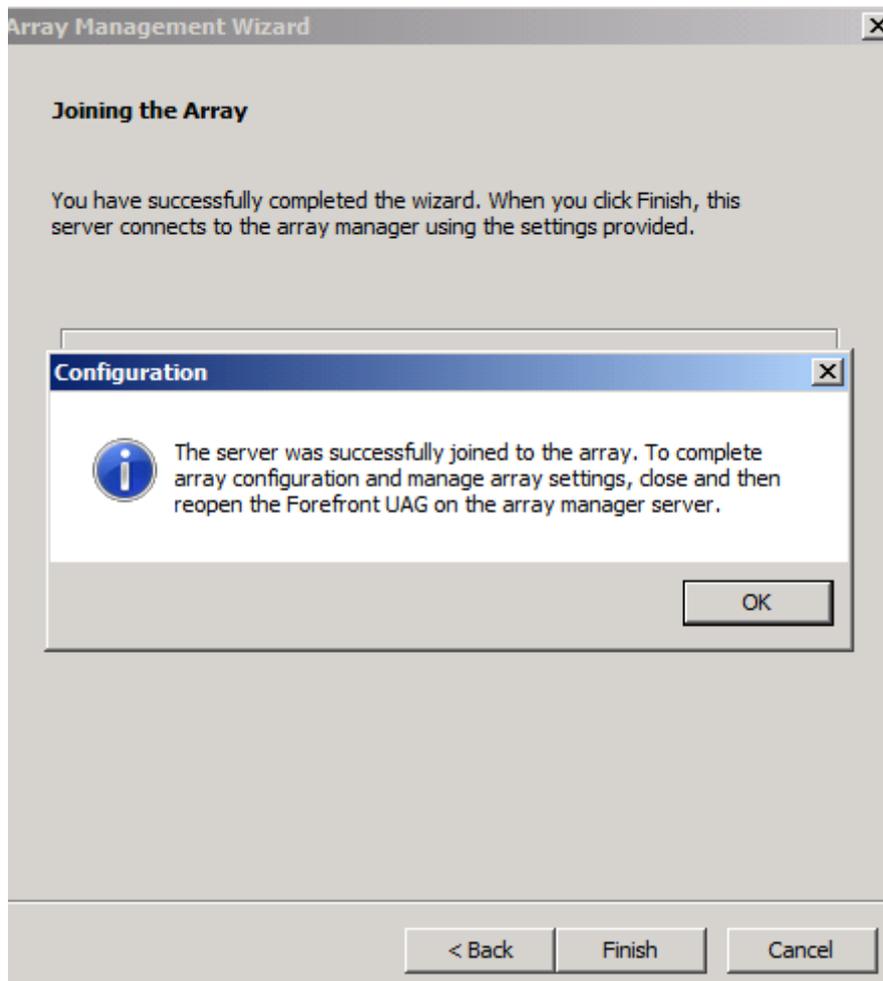


Figure 12: Successful array join

The synchronization was successful

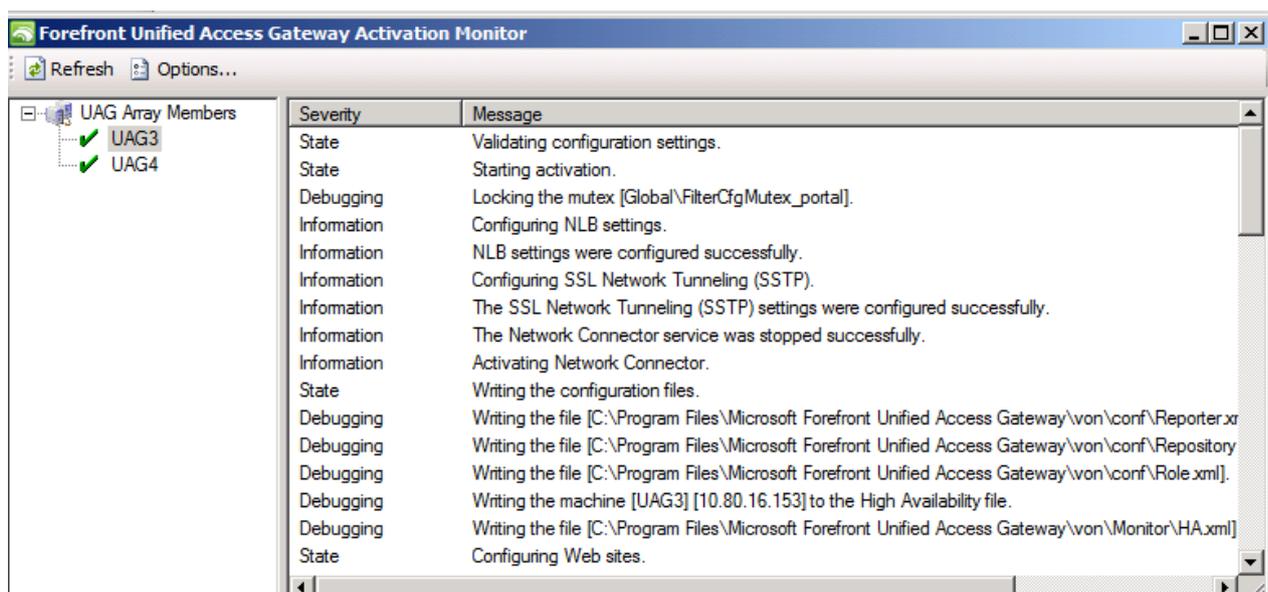


Figure 13: All in sync

Forefront UAG management can only be done from the Forefront UAG Array manager.

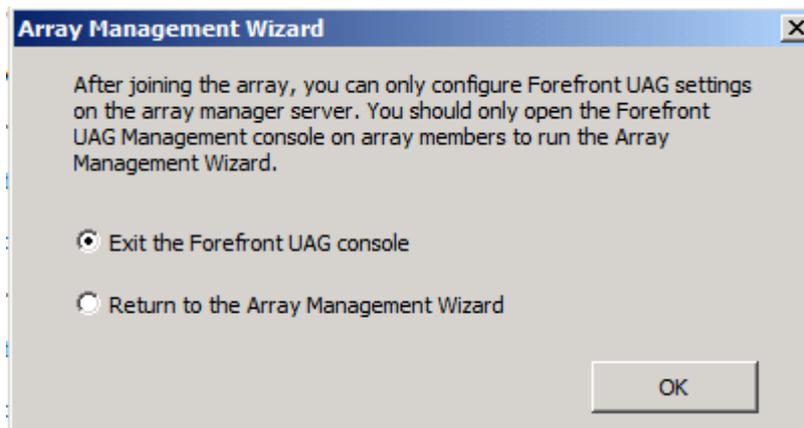


Figure 14: UAG Administration only from array manager

If you want to change the array manager you can use the array manager wizard in the Forefront UAG console on the array manager.

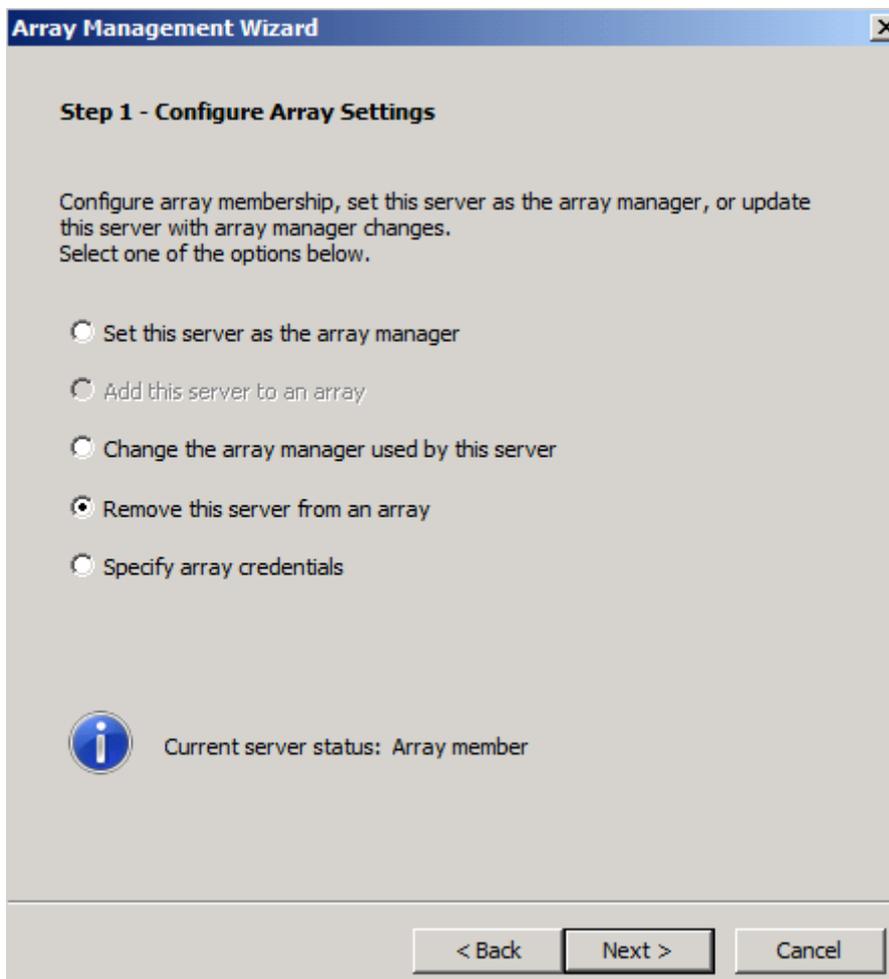


Figure 15: UAG array management

Please keep also an eye on the Forefront TMG configuration. Forefront UAG also synchronizes the configuration with the underlying Forefront TMG installation.

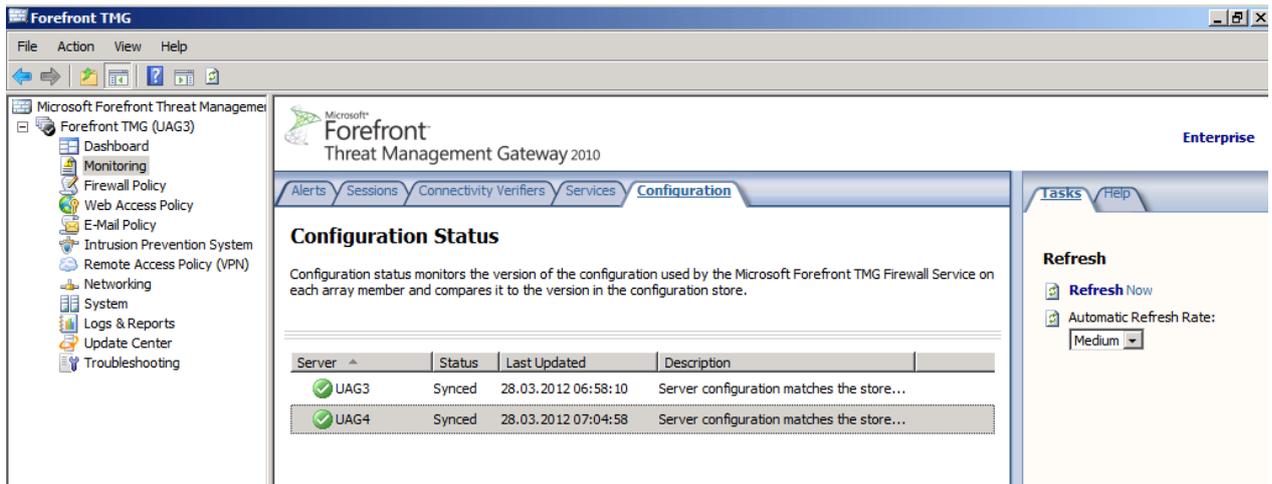


Figure 16: TMG configuration synchronized

Before we are able to change the trunk configuration in the Forefront UAG MMC to add the second Forefront UAG array member we must export all required certificates with the private key (.PFX) option on the first Forefront UAG array member. These certificates must be imported with the private key option in the local computer certificate store on the second Forefront UAG array member. If you are unsure which certificates must be exported / imported, start the UAG console and compare the thumbprint in the console with the certificate in the certificate MMC.

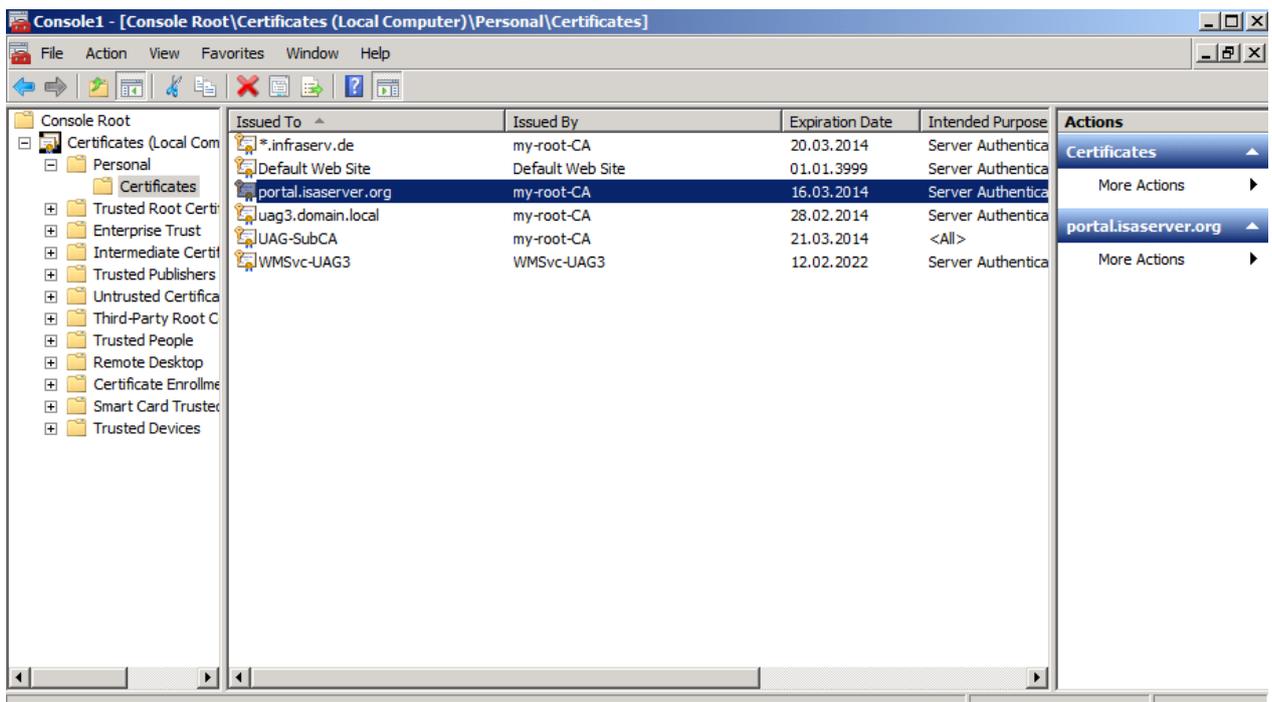


Figure 17: Export certificate and import on the other array member

Now it is time to change the external site address for the portal trunk in the Forefront UAG console. Start the console and select the required public IP address of the second Forefront UAG array member.

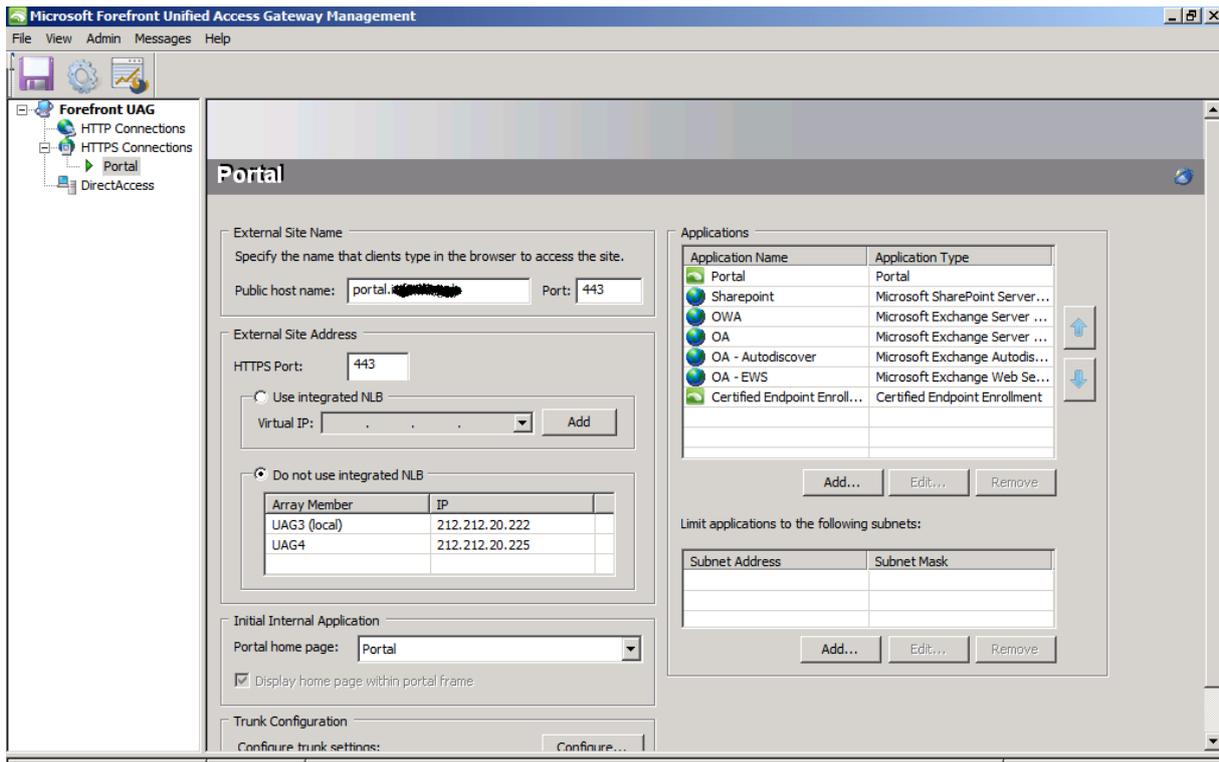


Figure 18: Select IP addresses for portal

Save the Forefront UAG configuration and activate the configuration.

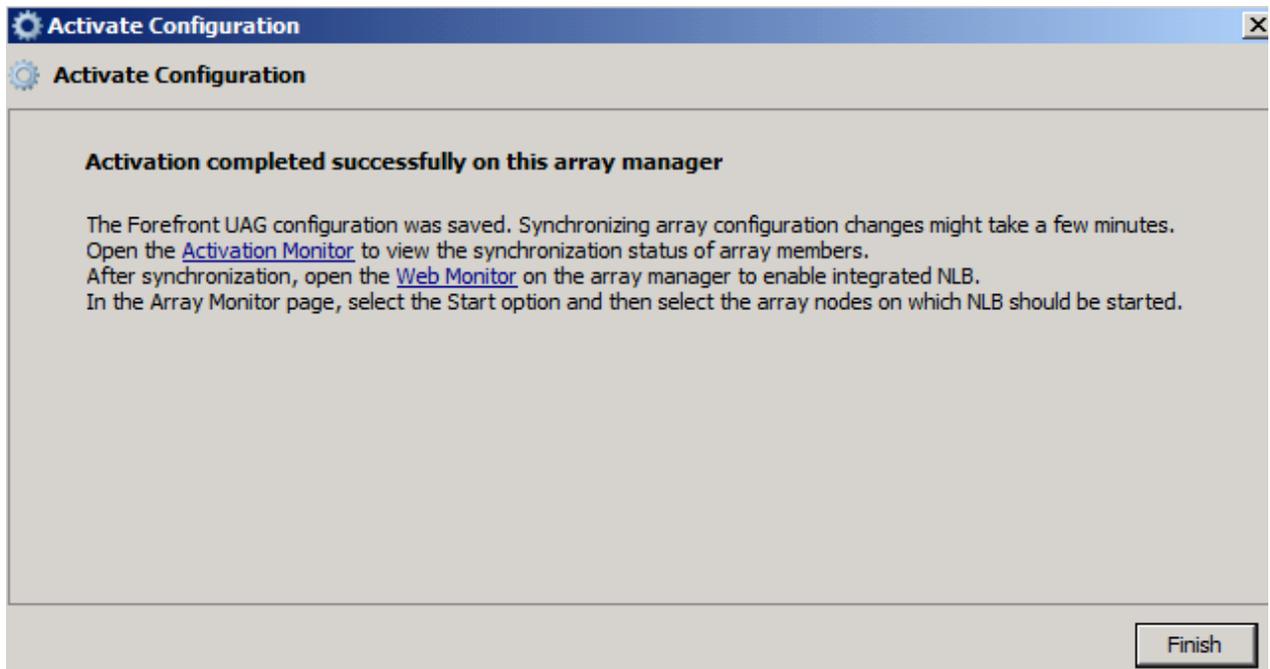


Figure 19: Activate configuration

After the activation has been successful you can see the Forefront UAG array status in the Forefront UAG Web Monitor.

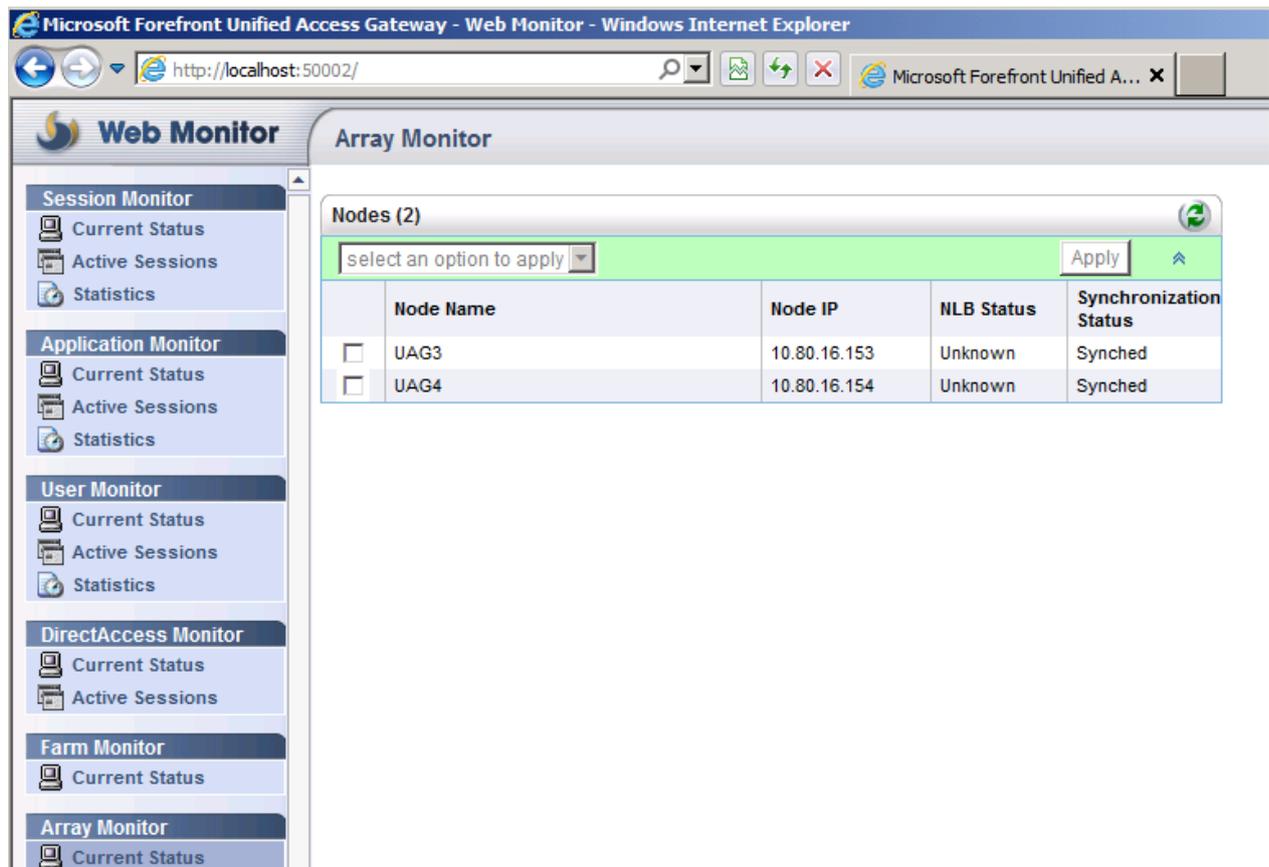


Figure 20: UAG Web Monitor – Array Monitor

## Conclusion

In this first article we discovered the steps that are necessary to create a Forefront UAG with two Forefront UAG Servers. In the next article we will be talking about how to implement Network Load Balancing (NLB) for a Forefront UAG array.

## Related links

Array deployment guide

<http://technet.microsoft.com/en-us/library/dd857305.aspx>

Configuring NLB for a Forefront UAG DirectAccess array

<http://technet.microsoft.com/en-us/library/ee191502.aspx>

Configuring NLB for a Forefront UAG array

<http://technet.microsoft.com/en-us/library/dd903059.aspx>

UAG Array and Network Load Balancing

<http://blogs.technet.com/b/edgeaccessblog/archive/2009/06/29/array-and-network-load-balancing.aspx>

Microsoft Forefront UAG – Overview of Microsoft Forefront UAG

<http://www.isaserver.org/tutorials/Microsoft-Forefront-UAG-Overview-Microsoft-Forefront-UAG.html>

Forefront UAG technical overview

<http://technet.microsoft.com/en-us/library/ee690443.aspx>