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



Start the Array configuration wizard

Array Management Wizard			×
Welcome to the Array Managen	nent Wizard		
This wizard helps you to configure an	d manage array	/S.	
Use this wizard to: 1. Set a server as the array manage 2. Add servers to the array 3. Manage array members: - Update array manager set - Remove servers from the a	r server tings array		
	< Back	Next >	Cancel

Figure 2: Array Management Wizard

Set this Server as the array manager

Array Management Wizard	×
Step 1 - Configure Array Settings Configure array membership, or set this server as the array manager. Select one of the options below.	
 Set this server as the array manager Add this server to an array 	
C Change the array manager used by this server	
Change the array manager used by this server	
C Remove this server from an array	
C Specify array credentials	
Current server status: Single server	
< Back Next > Cance	:

Figure 3: Array Manager

Specify Array credentials

Array Management Wiza	rd		X
Step 2 - Specify Arra Specify the credentials server-specific settings	y Credentials sed to connect to storage a from array members.	and to retrieve	
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.

Array Management Wizard			×
Step 3 - Defining Array Me Add the Forefront Unified Acc array members and managed	e mber Computers ess Gateway servers t by this array manager	hat will be configured as server.	nt devices. Use the links in this p
Name	IP Address	Status	Т
UAG3	10.80.16.153	Array manager Add/Edit S Enter the Name:	server (X)
,	Add	Edit, IP address Next > Cancel	s: 10 . 80 . 16 . 154

Figure 5: Add UAG4 to allow for array join

Successful array manager configuration

Array Management Wizard				×
Set Server as Array Manager				
You have successfully completed the server will become the array manage	e wizard. When y er.	you dick Finish, t	his	
User credentials: DOMAIN\admini: Number of array servers: 2	strator			
Configuration			X	
This server has be manager.	een configured s	uccessfully as th	ne array	
			ОК	
	< Back	Finish	Cancel	

Figure 5: Sucessful array join

Join the second Forefront UAG Server to the array

a Access Gateway 2010	Server Management Wizard	×
Getting Started Wizard Welcome to Microsoft Forefront Unified Access Ga This wizard helps you configure your network settings.	Welcome to the Server Management Wizard	
Specify how Forefront UA	Forefront UAG supports an array deployment, which allows you to manage multiple Forefront UAG servers as a single entity. With this wizard you can:	
Define Server Topol Optionally join this Forefro	- Create a new array - Join an existing array - Configure Forefront UAG as a single server	
Optionally join Microsoft Upda Optionally join Microsoft U Forefront UAG.		
Close	< Back Next > Cance	

Figure 6: Join array

Make the second Forefront UAG Server a array member

Server Management Wizard	×
Select Configuration	
Specify whether this is a single Forefront UAG server, or configure it as an array member.	
C Single server	
Array member	
Forefront UAG array members must belong to a domain.	
< Back Next > Cancel	

Figure 7: Become a array member

Add the Server to the array

Array Management Wizard	X
Step 1 - Configure Array Settings Configure array membership, or set this server as the array manager. Select one of the options below.	
C Set this server as the array manager	
Add this server to an array	
C Change the array manager used by this server	
C Remove this server from an array	
C Specify array credentials	
Current server status: Single server	
< Back Next >	Cancel

Figure 8: Add to array

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

Array Managemen	t Wizard		×
Step 2 - Select	Array Manager		
Select the array	manager, and specify	y the credentials used to cor	nnect to it.
Array manager	(IP address or FQDN)):	
UAG3.domain.	ocal		Browse
User credentia Enter a user member. It is period. User name:	account that has adr recommended that y administrator	ninistrator permissions on ev you use an account with a lo	very array ong expiry
Password:			
Domain:	domain.iocai		
Make s membe	ure that you have a ers on the array mana	dded this server to the list o ager.	farray
	[< Back Next >	Cancel

Figure 9: Select array manager

The second Forefront UAG Server joins the array.

Array	/ Manageme	ent Wizard				×
ן ץ פו	oining the A ou have succe erver connect	Array essfully completed the ts to the array manage	e wizard. When y er using the sett	vou click Finish, t ings provided.	this	
	Array mana Automatic t Array crede	Joining the array. The Please wait	his might take a	few minutes.		
			< Back	Finish	Cancel	

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.

Forefront Unified Access	Gateway Activati	ion Monitor
👌 Refresh 🔡 Options		
UAG Array Members	Severity	Message
UAG3	State	Validating configuration settings.
📖 🦺 UAG4	State	Starting activation.
	Debugging	Locking the mutex [Global\FilterCfgMutex_portal].
	Information	Configuring NLB settings.
	Information	NLB settings were configured successfully.
	Information	Configuring SSL Network Tunneling (SSTP).
	Information	The SSL Network Tunneling (SSTP) settings were configured successfully.
	Information	The Network Connector service was stopped successfully.
	Information	Activating Network Connector.
	State	Writing the configuration files.
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\conf\Reporter.x
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\conf\Repository
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\conf\Role.xml].
	Debugging	Writing the machine [UAG3] [10.80.16.153] to the High Availability file.
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\Monitor\HA.xml]
	State	Configuring Web sites.
	•	•

Figure 11: UAG Activation monitor

Sucessful array join

Arra	ay Manage	ment Wizard				X
	Joining th	e Array				
	You have su server conn	uccessfully completed the lects to the array manag	e wizard. When er using the set	you dick Finish, t tings provided.	this	
	Configura	tion			×	
	1	The server was success array configuration and reopen the Forefront U	fully joined to th manage array s AG on the array	ne array. To com settings, close ai manager servei	nplete nd then r.	
					ОК	
			< Back	Finish	Cancel	

Figure 12: Successful array join

The synchronization was successful

Sprefront Unified Access	Gateway Activati	ion Monitor
👌 Refresh 🔡 Options		
UAG Array Members	Severity	Message
UAG3	State	Validating configuration settings.
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	Information	NLB settings were configured successfully.
	Information	Configuring SSL Network Tunneling (SSTP).
	Information	The SSL Network Tunneling (SSTP) settings were configured successfully.
	Information	The Network Connector service was stopped successfully.
	Information	Activating Network Connector.
	State	Writing the configuration files.
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\conf\Reporter.xr
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\conf\Repository
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\conf\Role.xml].
	Debugging	Writing the machine [UAG3] [10.80.16.153] to the High Availability file.
	Debugging	Writing the file [C:\Program Files\Microsoft Forefront Unified Access Gateway\von\Monitor\HA.xml]
	State	Configuring Web sites.
	•	۰. ۱
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.

🗮 Forefront TMG						_ <u>8</u> ×
File Action View Help						
 Incrosoft Forefront Threat Managemer Image: Source of the second second second second second monitoring 	Forefro Threat Ma	nt anagement	t Gateway 2010			Enterprise
Firewall Policy Web Access Policy F-Mail Policy	Alerts Sessions	Connectivity	v Verifiers Services	Configuration		Tasks Help
 Entrusion Prevention System Remote Access Policy (VPN) Networking System Logs & Reports 	Configuration Status Configuration status monitors the version of the configuration used by the Microsoft Forefront TMG Firewall Service on each array member and compares it to the version in the configuration store.					Refresh Refresh Now Automatic Refresh Rate:
Troubleshooting	Server 🔺	Status	Last Updated	Description		
	🖉 UAG3	Synced	28.03.2012 06:58:10	Server configuration matches the store		
	WAG4	Synced	28.03.2012 07:04:58	Server configuration matches the store		

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.

🚡 File Action View Favorites Window Help	
	×
Console Root Issued To A Issued By Expiration Date Intended Purpose Actions	
🖻 🙀 Certificates (Local Com 🙀 *,infraserv.de my-root-CA 20.03.2014 Server Authentica	
Personal Default Web Site Default Web Site 01.01.3999 Server Authentica	
Certificates portal.isaserver.org my-root-CA 16.03.2014 Server Authentica More Actions	*
Trusted Root Certit Quag3.domain.local my-root-CA 28.02.2014 Server Authentica	
Enterprise irust UAG-subCA my-root-CA 21.03.2014 <all></all>	
Thermediate Certail WMSvc-UAG3 WMSvc-UAG3 12.02.2022 Server Authentica More Actions	۲.
Third-Party Root C	
Carte Desktop	
🗄 🧰 Certificate Enrollme	
🗄 🚞 Smart Card Trustec	
🗄 🚞 Trusted Devices	
	_

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.

🗟 Microsoft Forefront Unifie	d Access Gateway Management		
File View Admin Messages	Help		
🔚 🔇 🔜			
Forefront UAG HTTP Connections HTTPS Connections Portal DirectAccess	Portal		<u>•</u> Ø
	External Site Name	Applications	
	Specify the name that dients type in the browser to acces	Application Name	Application Type Portal
	- School Sta Address	OWA	Microsoft SharePoint Server Microsoft Exchange Server
	HTTPS Port: 443	OA OA - Autodiscover	Microsoft Exchange Server Microsoft Exchange Autodis
	C Use integrated NLB	Add	Certified Endpoint Enrollment
	© Do not use integrated NLB		Edit Demous
	Array Member IP UAG3 (local) 212.212.20.222	Limit applications to the following	subnets:
	UAG4 212.212.20.225	Subnet Address	Subnet Mask
	Initial Internal Application		
	Portal home page: Portal	▼Add	Edit Remove
	Display home page within portal frame		
	Configuration Configure trunk settings: Ca	onfigure	<u>•</u>

Figure 18: Select IP addresses for portal

Save the Forefront UAG configuration and activate the configuration.

C Activate Configuration	×
Activate Configuration	
Activation completed successfully on this array manager	
The Forefront UAG configuration was saved. Synchronizing array configuration changes might take a few minutes. Open the <u>Activation Monitor</u> to view the synchronization status of array members. After synchronization, open the <u>Web Monitor</u> on the array manager to enable integrated NLB. In the Array Monitor page, select the Start option and then select the array nodes on which NLB should be started.	
Figure 40. Activate configuration	nish

Figure 19: Activate configuration

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

🙋 Microsoft Forefront Unified Ac	cess Ga	teway - Web Monitor - Win	dows Interne	t Explorer		
COC 🗢 🌾 http://localhost:50	0002/		۵ 🗨	🗲 🗙 🌈 мі	crosoft Forefront L	Inified A ×
Web Monitor	Array	Monitor				
Session Monitor	Nodes (2)				Apply 🔦	
Statistics	,	Node Name		Node IP	NLB Status	Synchronization Status
Application Monitor		UAG3		10.80.16.153	Unknown	Synched
Current Status		UAG4		10.80.16.154	Unknown	Synched
User Monitor Current Status Active Sessions Statistics DirectAccess Monitor Current Status Active Sessions Farm Monitor Current Status Array Monitor						
Eigure 20: UAG Web Monitor – A	Arrav Mo	phitor				

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 <u>http://technet.microsoft.com/en-us/library/dd857305.aspx</u> Configuring NLB for a Forefront UAG DirectAccess array <u>http://technet.microsoft.com/en-us/library/ee191502.aspx</u> Configuring NLB for a Forefront UAG array <u>http://technet.microsoft.com/en-us/library/dd903059.aspx</u> UAG Array and Network Load Balancing <u>http://blogs.technet.com/b/edgeaccessblog/archive/2009/06/29/array-and-network-load-balancing.aspx</u> Microsoft Forefront UAG – Overview of Microsoft Forefront UAG <u>http://www.isaserver.org/tutorials/Microsoft-Forefront-UAG-Overview-Microsoft-Forefront-UAG.html</u> Forefront UAG technical overview <u>http://technet.microsoft.com/en-us/library/ee690443.aspx</u>