

## **Microsoft Forefront TMG – Explaining the Forefront TMG SDK**

### **Abstract**

In this article I will show you how the Forefront TMG SDK tools extends the functionality of Forefront TMG and how the SDK will give you some additional information about how Forefront TMG works under the hood.

### **Let's begin**

The Forefront TMG 2010 SDK contains libraries, tools, samples and documentation to enable developers and system administrators to deploy, configure, customize, and extend their Forefront TMG environment. You can download the Forefront TMG SDK for free [here](#).

There are a lot of tools which are separately available for download and we will have a briefly look into the most important tools. Let us start with the ADAM Sites tool for Forefront TMG Enterprise.

### **ADAM Sites Tool for Forefront TMG Enterprise Edition**

The ADAM Sites tool is used to define AD-LDS (Active Directory Lightweight Directory Service) sites to control the traffic between Forefront TMG Enterprise Management Servers (EMS). The Enterprise Management Server is a server which is used to manage a TMG Enterprise Array or even possibly, a standalone server. Every Forefront TMG nodes which uses this EMS, gets the configuration from this EMS Server. By default, an EMS Server is not site aware, so if you have multiple EMS Servers in different locations there is no way to control the replication interval and the costs used by this link. ADAM Sites tool allows you to define AD-LDS site links and associate costs and a replication interval between this links. Before you can use the ADAM Sites tool copy the ADAMSITES.EXE file to the Forefront TMG installation directory. The following screenshot shows the command line options of ADAM Sites.

```

Administrator: Command Prompt
C:\Program Files\Microsoft Forefront Threat Management Gateway>adamsites /?
The command for AdamSites is unrecognized or missing.

Usage:
    AdamSites.exe Site/SiteLink/Sites/SiteLinks/MoveServer/Backup/Restore
    [Task Specific arguments]

where

    Task          Task Arguments
    Site          Create/View/Delete Name
    SiteLink      View/Delete Name
    SiteLink      Create Name count site<1>...site<count> cost
                  replication-interval [description]
    Sites
    SiteLinks
    MoveServer    Server-Name From-site To-site
    Backup        filename
    Restore       filename

Examples:

AdamSites Site create MySite
    Create an empty site named "MySite"

AdamSites SiteLink create MyLink 3 site1 site2 site3 50 750
    "My SiteLink description"
    Creates a site link named "MyLink" that connects 3 sites:
    site1, site2, and site3.
    The cost of this site link is 50, and replication occurs
    every 750 minutes.
    Note: ADAM defaults (if configured using script) are:
           Cost = 100
           Replication Interval = 180 minutes

AdamSites Sites
    Display the list of sites with their associated servers.

```

Figure 1: ADAMSITES Tool

## Auto Discovery Configuration Tool for Forefront TMG

The Auto-Discovery Configuration Tool can be used to configure Active Directory with a marker key that points to your Forefront TMG server. This key is used by the TMG (formerly Firewall client) client to locate the Forefront TMG server and connect to it. This is an alternative and more secure method as DHCP/DNS to find the Forefront TMG Server. If no Active Directory Marker is found, the Forefront TMG client falls back to DHCP/DNS to find its Forefront TMG Server.

```

Administrator: Command Prompt
C:\Program Files (x86)\Microsoft Forefront TMG Tools\AdConfig>TmgAdConfig.exe /?
Forefront TMG Auto-Discovery Configuration Tool
Usage:
TmgAdConfig.exe add -site <site-name> -type winsock -url <service-url> [-f]
TmgAdConfig.exe add -default -type winsock -url <service-url> [-f]
TmgAdConfig.exe del -site <site-name> -type winsock
TmgAdConfig.exe del -default -type winsock
TmgAdConfig.exe list [-default] [-site <site-name>]
TmgAdConfig.exe <any-command> -help

Example:
TmgAdConfig.exe add -site My-Site -type winsock -url http://contoso.com:8080/wsp
ad.dat
Register the given URL as the winsock proxy service for site My-Site.
TmgAdConfig.exe list -site My-Site
Print all service markers registered for site My-Site.

C:\Program Files (x86)\Microsoft Forefront TMG Tools\AdConfig>

```

Figure 2: TMG Auto-Discover Tool

## Cache Directory Tool for Forefront TMG

Use the Cache Directory Tool to view real-time cache contents, save information about the current cache contents to a file, and mark obsolete items that should not be served from the cache. The Cachedir utility is in my opinion the most wanted utility from the Forefront TMG SDK and was also available in previous ISA Server version. Before you can use the Cachedir tool copy the CACHEDIR.EXE file to the Forefront TMG installation directory.

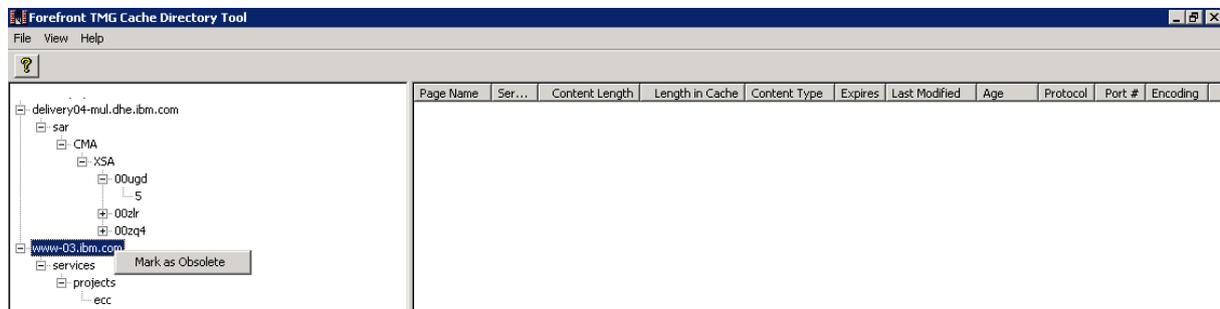


Figure 3: CacheDir Tool

## CertTool for TMG

The Certtool for TMG is only required when you use Forefront TMG Enterprise in a workgroup environment. In a TMG workgroup environment certificates are used to communicate between the TMG servers. The Certtool helps you to ease the process of installing or substituting certificates in Forefront TMG. Before you can use the Certtool for TMG copy the ISACERTTOOL.EXE file to the Forefront TMG installation directory.

```

Administrator: Command Prompt
C:\>cd "Program Files"
C:\Program Files>cd "Microsoft Forefront Threat Management Gateway"
C:\Program Files\Microsoft Forefront Threat Management Gateway>ISACertTool.exe /
?
Installs certificates that enable a Microsoft Forefront TMG to communicate
with a Microsoft Forefront TMG Configuration Storage Server.

ISACertTool [/st file_name [/pswd password] [/keepcerts]] : /fw file_name

On the Configuration Storage Server, use:
  /st filename      Install a server authentication certificate to the
                    Configuration Storage service store.
  /pswd password   Specify the password to use when installing a server
                    authentication certificate.
  /keepcerts       Do not delete existing certificates installed in the
                    Configuration Storage service store.

On the Firewall server, use:
  /fw filename      Install a root Certificate Authority (CA) certificate to
                    the local computer store.

C:\Program Files\Microsoft Forefront Threat Management Gateway>

```

Figure 4: ISACerttool

## DNS Cache Tool for Forefront TMG

Use the DNS Cache Tool on a Forefront TMG server to display the contents of the Domain Name System (DNS) cache and to delete entries in the DNS cache. For example, the Forefront TMG clients uses the Forefront TMG DNS settings for name resolution, the Secure NAT client uses the local DNS settings for name resolution. In some circumstances it might be necessary to delete the DNS Cache settings on Forefront TMG.

**Please note:** Clearing the DNS cache on the TMG server with the well-known IPCONFIG /FLUSHDNS command will only delete the DNS Cache from the local DNS client resolver.

Before you can use the DNS Cache tool, copy the DNSTOOLS.EXE to the Forefront TMG installation directory.

```

Administrator: Command Prompt
dnstools /D|/DZ|/C [/SA <address>] [/SN <name>] [<ISA Server>]

/D - Dump DNS Cache contents
/DZ - Dump DNS Cache contents ( including zombies entries)
/C - Clear DNS Cache contents
/SA - execute the operation on the specific address <address> only
/SN - execute the operation on the specific name <name> only

<ISA Server> can be omitted for local machine or should be the ISA server name .

C:\Program Files\Microsoft Forefront Threat Management Gateway>dnstools /d
GetHostByName Cache:
=====
Maximum Entries : 10000
Maximum DnsTTL (in sec) : 21600
Minimum DnsTTL (in sec) : 360

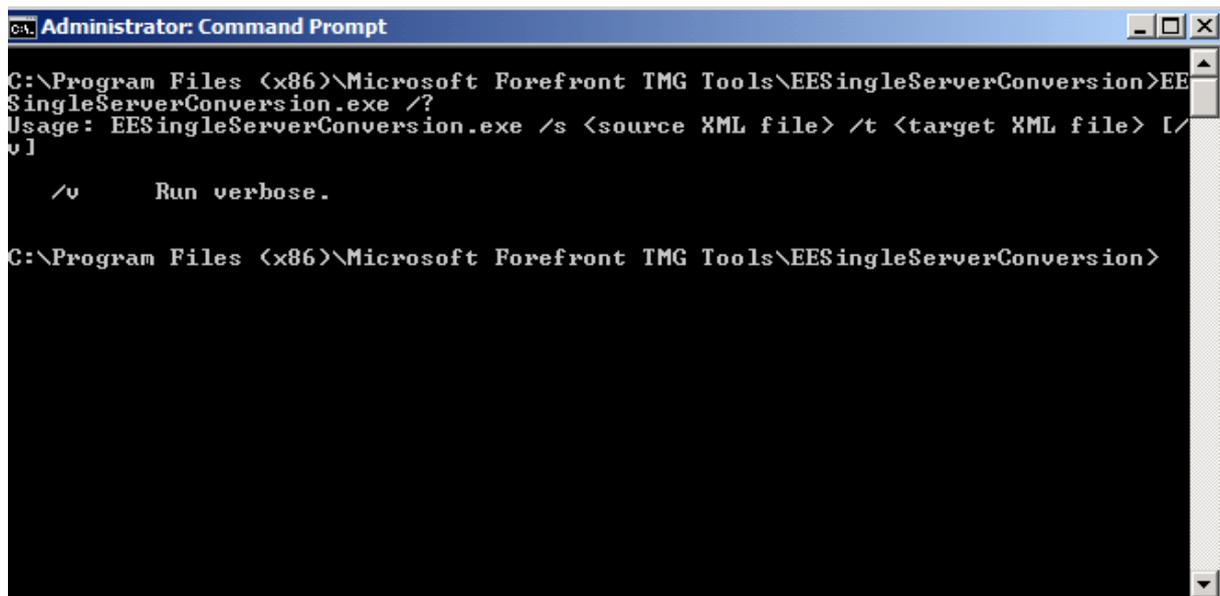
Searched_name : TMG-EN

```

Figure 5: TMG DNSCache Tool

## EE Single Server Conversion tool for Forefront TMG

Use this tool (EESingleServerConversion.exe) to help you migrate a standalone server running either ISA Server 2004 Enterprise Edition or ISA Server 2006 Enterprise Edition to Forefront TMG in standalone mode. Before you import the ISA Server Enterprise configuration into Forefront TMG Enterprise in Standalone Mode, you have to convert the different XML settings from the ISA Server export format to a readable format to import the configuration into Forefront TMG Enterprise. After installing the conversion tool and copying the ISA Enterprise configuration file to the Forefront TMG server, open a command prompt and enter the command with the source and target XML file as shown in the following screenshot.

A screenshot of a Windows Command Prompt window titled "Administrator: Command Prompt". The window shows the following text:

```
C:\Program Files (x86)\Microsoft Forefront TMG Tools\EESingleServerConversion>EESingleServerConversion.exe /?
Usage: EESingleServerConversion.exe /s <source XML file> /t <target XML file> [/v]

/v      Run verbose.

C:\Program Files (x86)\Microsoft Forefront TMG Tools\EESingleServerConversion>
```

Figure 6: ISA to TMG Single Server conversion tool

This command will convert the ISA Server Enterprise configuration file to a format supported on Forefront TMG Enterprise standalone.

## MSDEtoText Tool for Forefront TMG

The MSDEtoText tool can be used to convert Forefront TMG SQL Express Server logs into a text file, or to display their contents on the screen. You can use the MSDEtoText utility with ISA Server 200x and Forefront TMG. The following screenshot shows the syntax of the MSDEtoText tool.

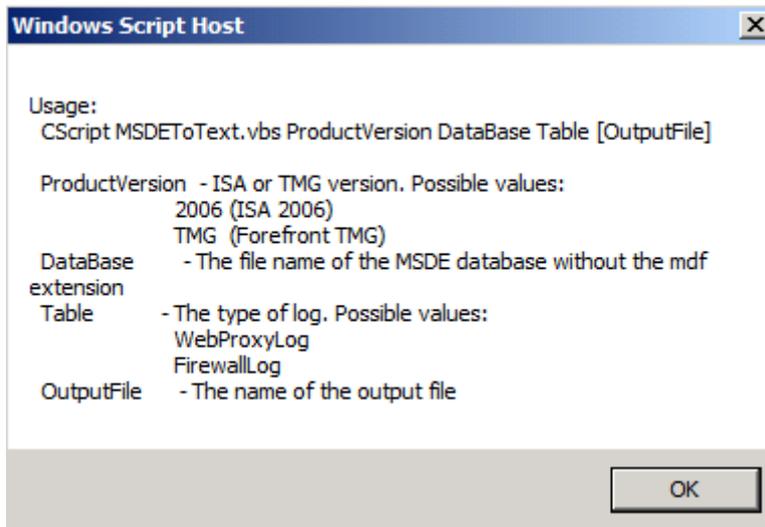


Figure 7: MSDE to Text conversion tool

The following screenshot shows an example for exporting a Firewall log file.

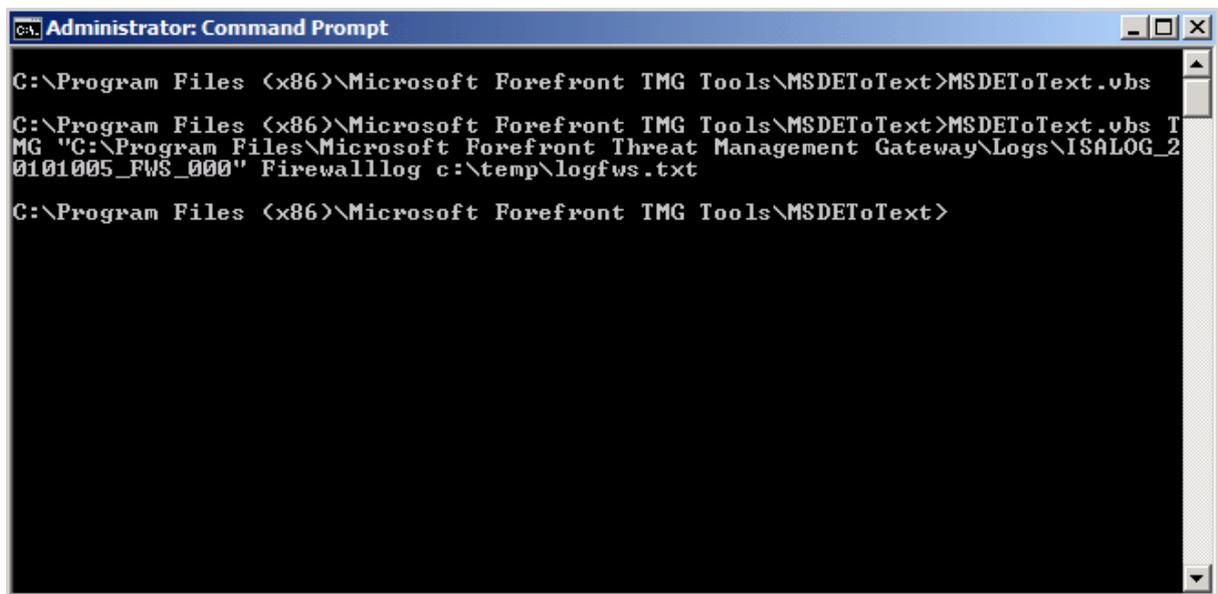


Figure 8: MSDE to Text conversion tool example

## Remote Access Quarantine Tool for Forefront TMG

Forefront TMG also supports the legacy Remote Access Quarantine service which must be used in ISA Server 200x to enforce quarantine for VPN clients which connects to ISA Server. I recommend using NAP (Network Access Protection) from Windows Server 2008 in combination with Forefront TMG, which is a much easier and more flexible to configure as the RQS-components from the TMG SDK.

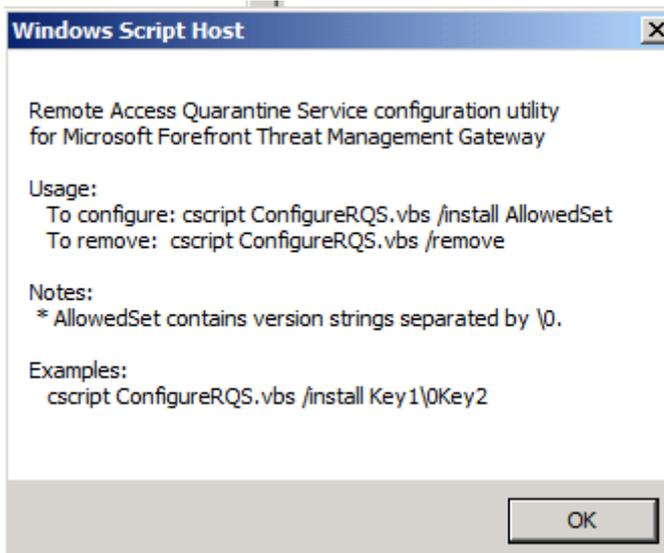


Figure 9: RQS tools

## RSA Test Authentication Utility for Forefront TMG

The RSA Test Authentication Utility can be used to verify that a computer running Forefront TMG can authenticate to a computer running RSA Authentication Manager. Before you can use the RSA Test Authentication utility copy the SDTEST.EXE and SDUI.DLL files to the Forefront TMG installation directory.

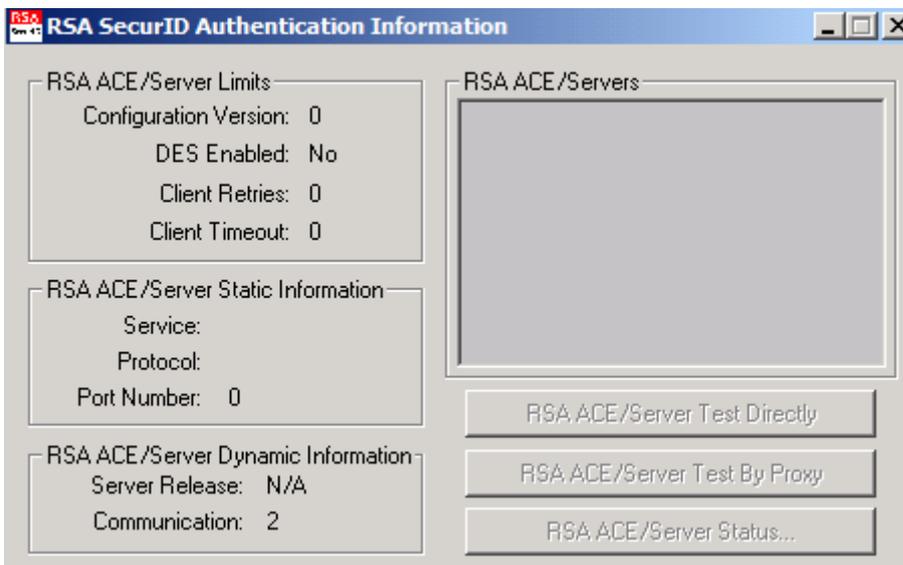


Figure 10: RSA SecurID Authentication tool

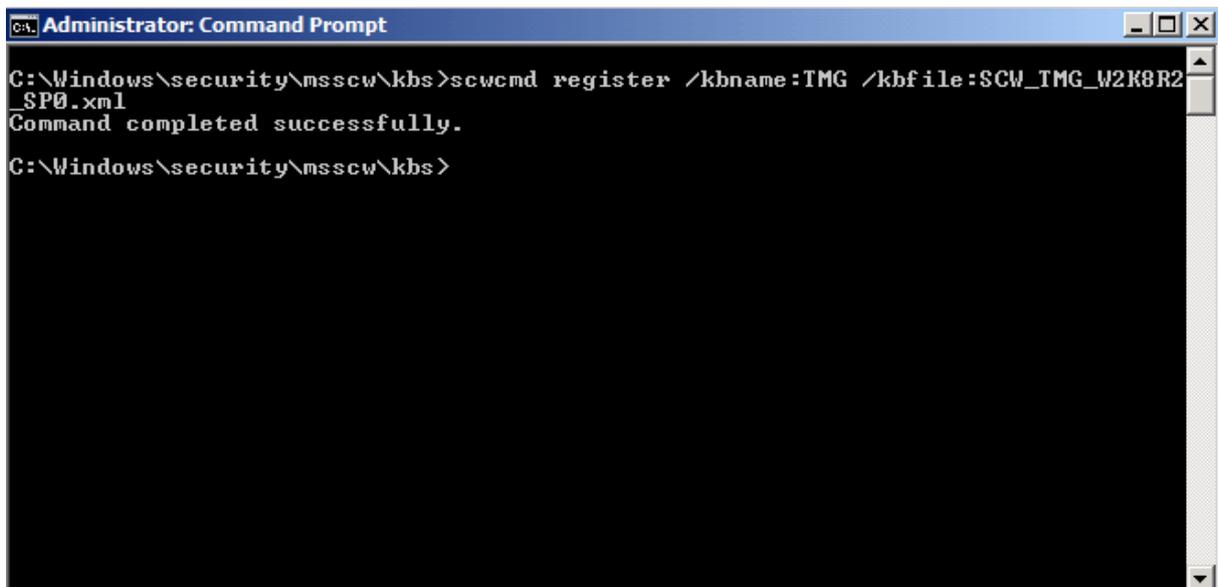
## Security Configuration Wizard (SCW) Update for Forefront TMG Standard Edition and Enterprise Edition

Windows Server 2008 and Windows Server 2008R2 include a tool called the Security Configuration Wizard (SCW). This tool can be used to simplify the task of hardening the underlying operating system in preparation for deploying Forefront TMG. The SCW will create a policy that configures services, registry settings, Audit policies and more based on the roles and features installed. By default, the SCW doesn't know that Forefront TMG is installed. The Forefront TMG SDK comes with an extension to the SCW.

There are two files which must be copied to the Windows\Security\Msscw\kbs directory:

- SCW\_TMG\_W2K8R2\_SP0.XML
- SCW\_TMGEMS\_W2K8R2\_SP0.XML

After that open an elevated command prompt and enter the following command:  
*scwcmd register /kname:TMG /kbfile:SCW\_TMG\_W2K8R2\_SP0.xml*



```
C:\Windows\security\msscw\kbs>scwcmd register /kname:TMG /kbfile:SCW_TMG_W2K8R2_SP0.xml
Command completed successfully.
C:\Windows\security\msscw\kbs>
```

Figure 11: TMG SCW tool

After that create a new Security policy and the SCW will see the roles installed on the Forefront TMG server.

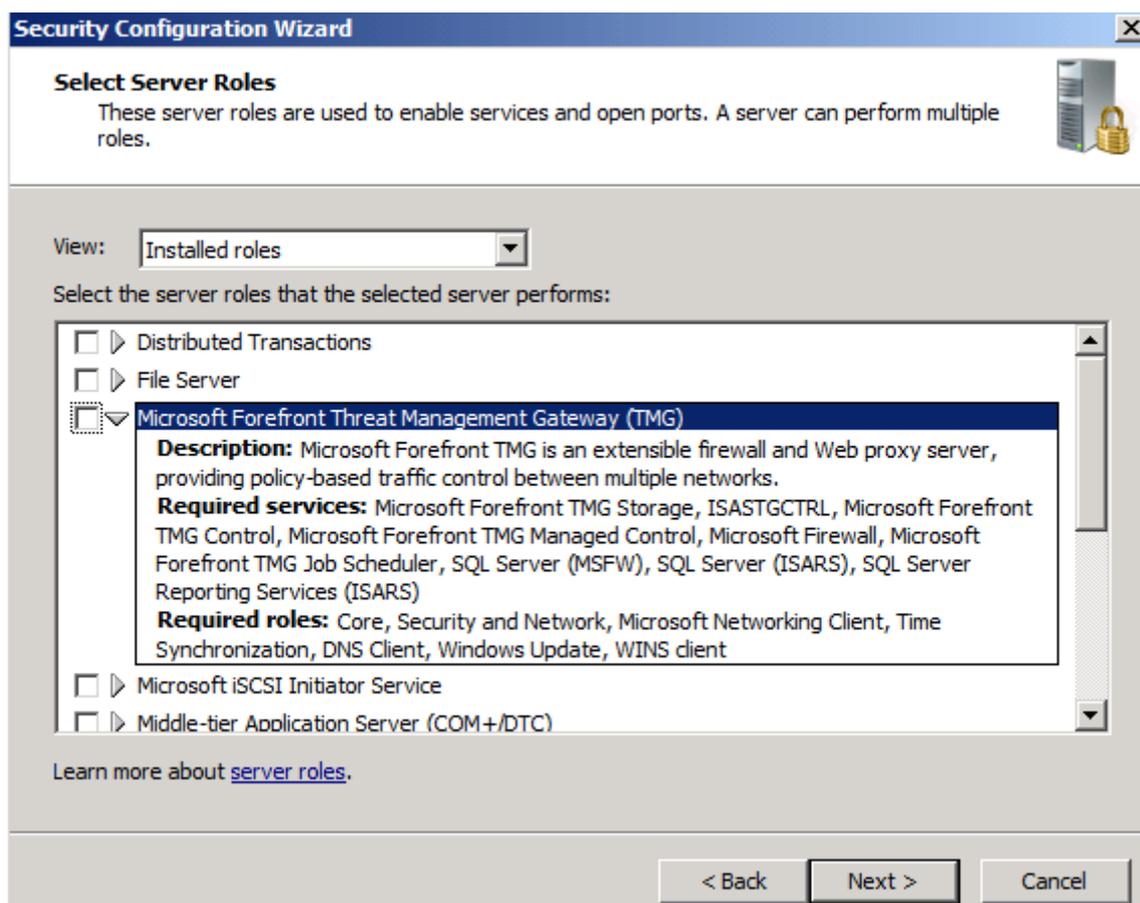


Figure 12: SCW with TMG role

For more information about the SCW and Forefront TMG I recommend reading the [article](#) of Richard Hicks.

## Forefront TMG 2010 SDK

The Forefront TMG SDK comes with a very helpful ISASDK.CHM file which contains a lot of deep technical information about Forefront TMG and some examples for developing Application and Web filters in Forefront TMG.

## ISASDK.CHM

The ISASADK.CHM file contains information about the Forefront TMG architecture and its subsystems and some code samples to configure or extend Forefront TMG programmatically.

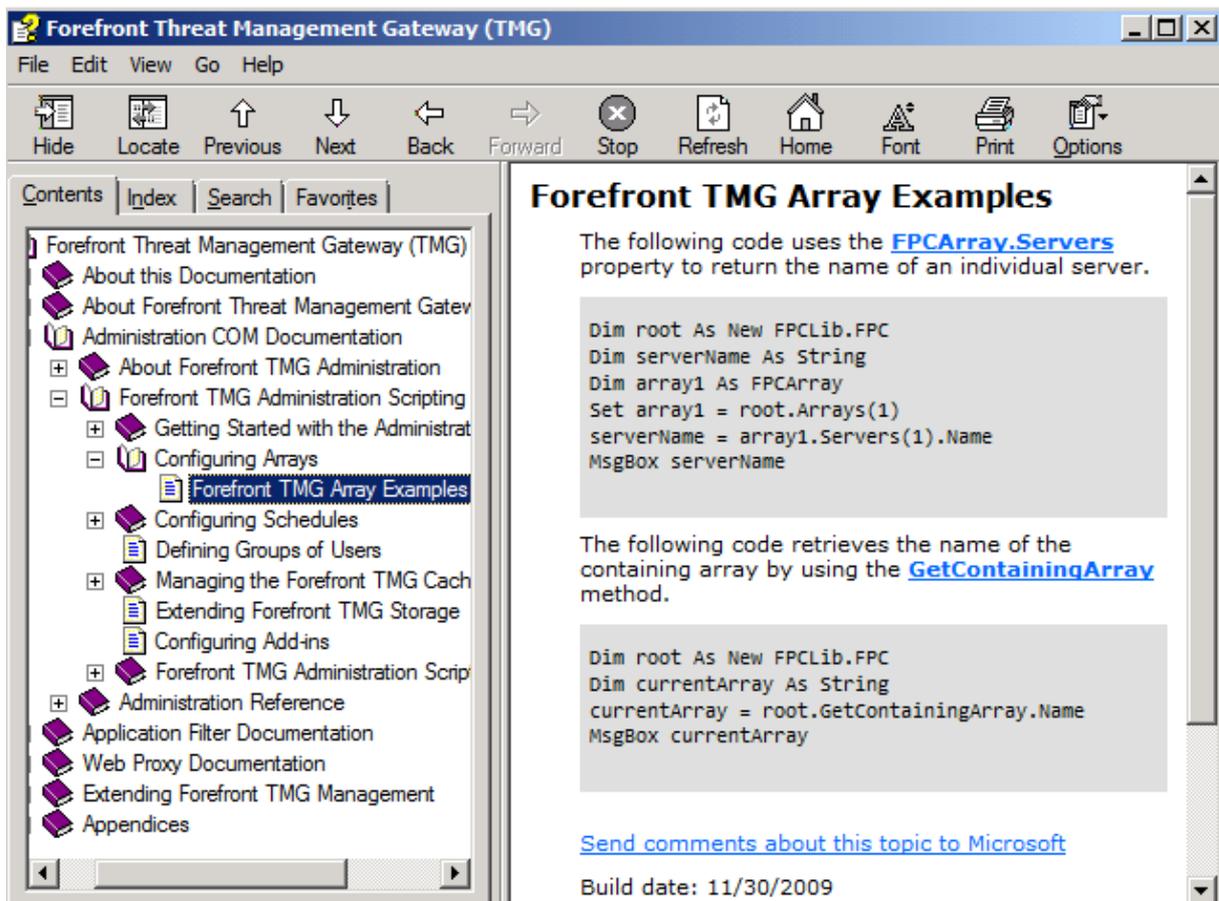


Figure 13: TMG SDK documentation

## Samples/Admin directory

There are some very helpful VBS scripts in the samples/Admin directory installed by the Forefront TMG SDK setup routine. For this article I will show you two examples. The first script is the HTTPFilterconfig.vbs which can be used to import or export the HTTP filter settings from a specific firewall policy rule.

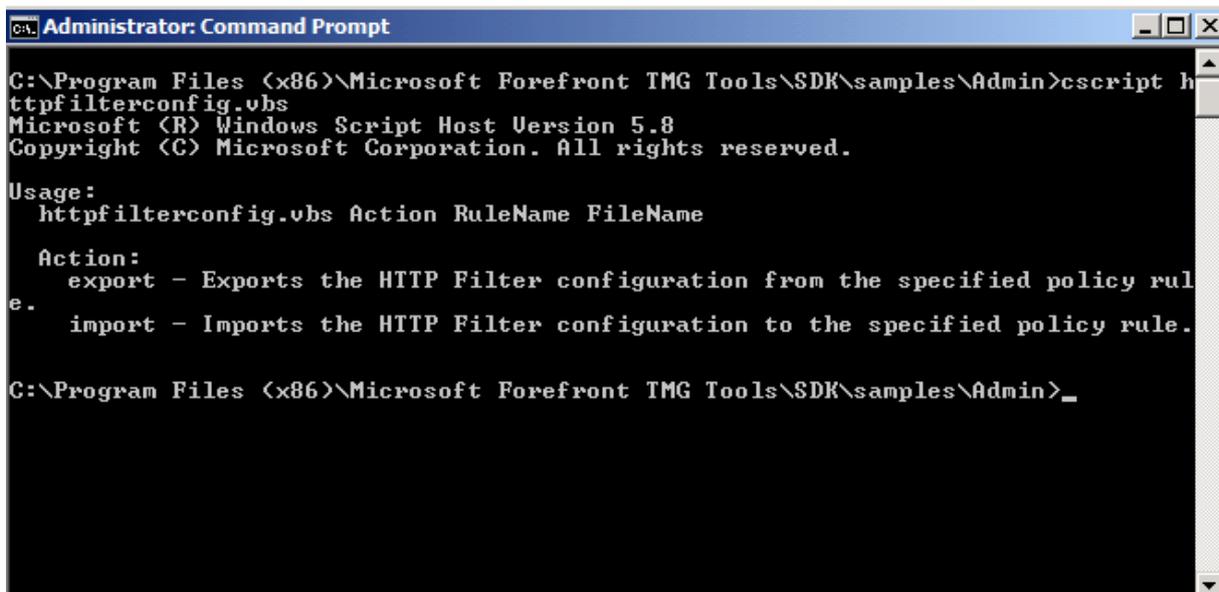
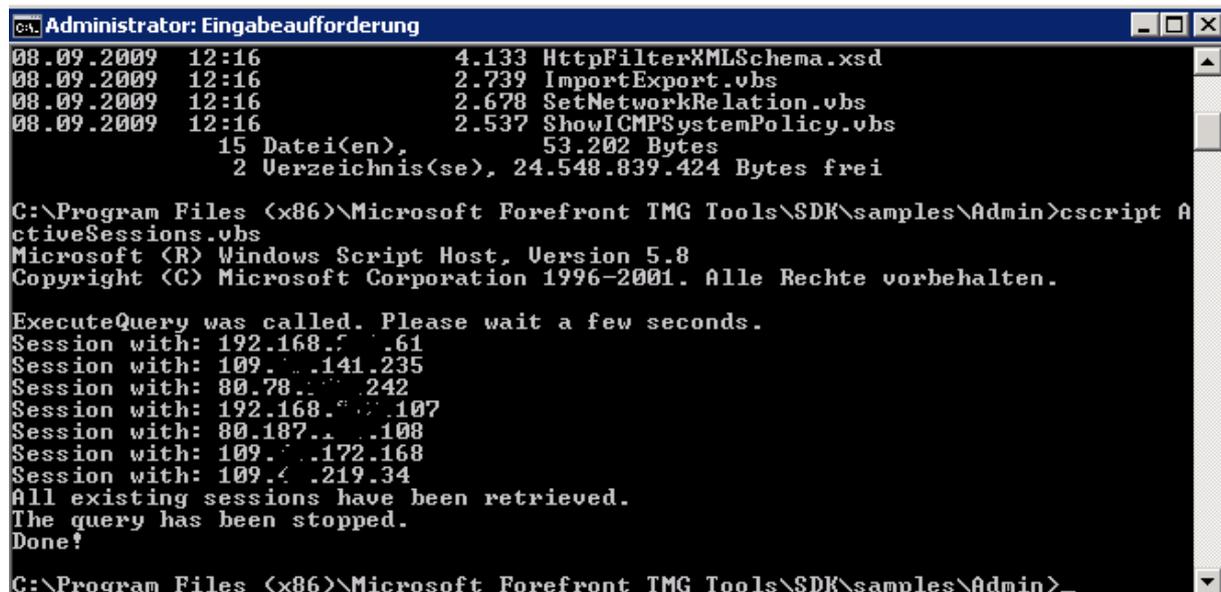


Figure 14: TMG SDK sample script for HTTP Filter export

There is another very helpful script called ActiveSession.vbs which will give you a quick overview about the current connected sessions on Forefront TMG.



```
C:\Administrator: Eingabeaufforderung
08.09.2009 12:16 4.133 HttpFilterXMLSchema.xsd
08.09.2009 12:16 2.739 ImportExport.vbs
08.09.2009 12:16 2.678 SetNetworkRelation.vbs
08.09.2009 12:16 2.537 ShowICMPSystemPolicy.vbs
15 Datei(en), 53.202 Bytes
2 Verzeichnis(se), 24.548.839.424 Bytes frei

C:\Program Files (x86)\Microsoft Forefront TMG Tools\SDK\samples\Admin>cscript ActiveSessions.vbs
Microsoft (R) Windows Script Host, Version 5.8
Copyright (C) Microsoft Corporation 1996-2001. Alle Rechte vorbehalten.

ExecuteQuery was called. Please wait a few seconds.
Session with: 192.168.5.61
Session with: 109.141.235
Session with: 80.78.242
Session with: 192.168.107
Session with: 80.187.108
Session with: 109.172.168
Session with: 109.219.34
All existing sessions have been retrieved.
The query has been stopped.
Done!

C:\Program Files (x86)\Microsoft Forefront TMG Tools\SDK\samples\Admin>
```

Figure 15: TMG SDK sample script to display Active Sessions

## Conclusion

In this article I gave you an overview about the Forefront TMG SDK utilities and the SDK documentation itself. I recommend also spending some time to read the Forefront TMG SDK documentation because they contain a lot of additional information about the internal architecture of Forefront TMG.

## Related links

Forefront TMG SDK

<http://www.microsoft.com/downloads/en/details.aspx?FamilyID=8809CFDA-2EE1-4E67-B993-6F9A20E08607>

ISA Server 2006 SDK

<http://www.microsoft.com/downloads/en/details.aspx?familyid=16682c4f-7645-4279-97e4-9a0c73c5162e&displaylang=en>

SCW on German Forefront TMG servers

<http://www.it-training-grote.de/download/TMG-SCW.pdf>

Microsoft Forefront TMG – TMG Storage 101

<http://www.isaserver.org/tutorials/Microsoft-Forefront-TMG-Storage-101.html>

Using the Security Configuration Wizard with Microsoft Forefront Threat Management Gateway 2010

<http://www.isaserver.org/tutorials/Using-Security-Configuration-Wizard-Microsoft-Forefront-Threat-Management-Gateway-2010.html>