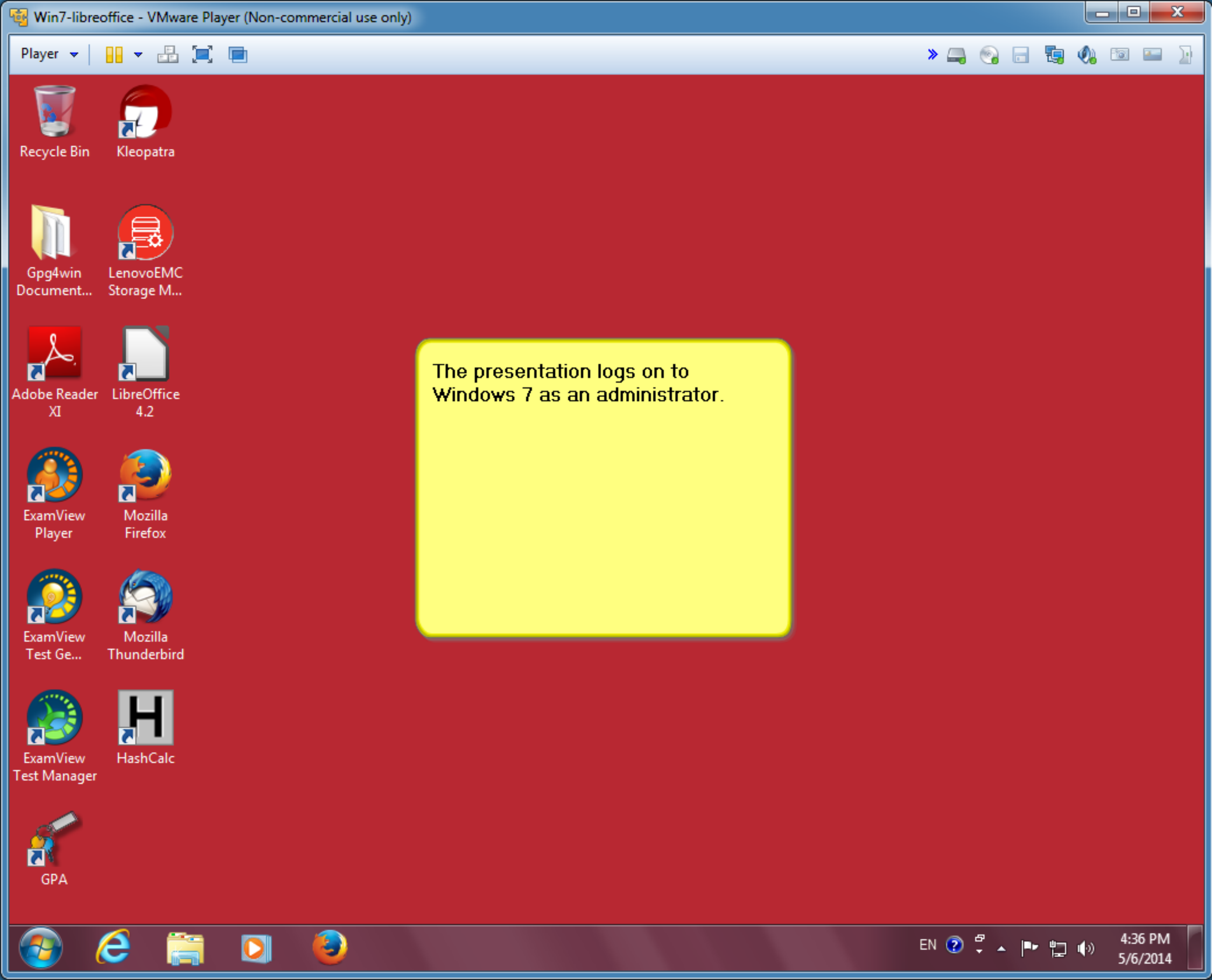
Windows simple IPsec setup for IPv4

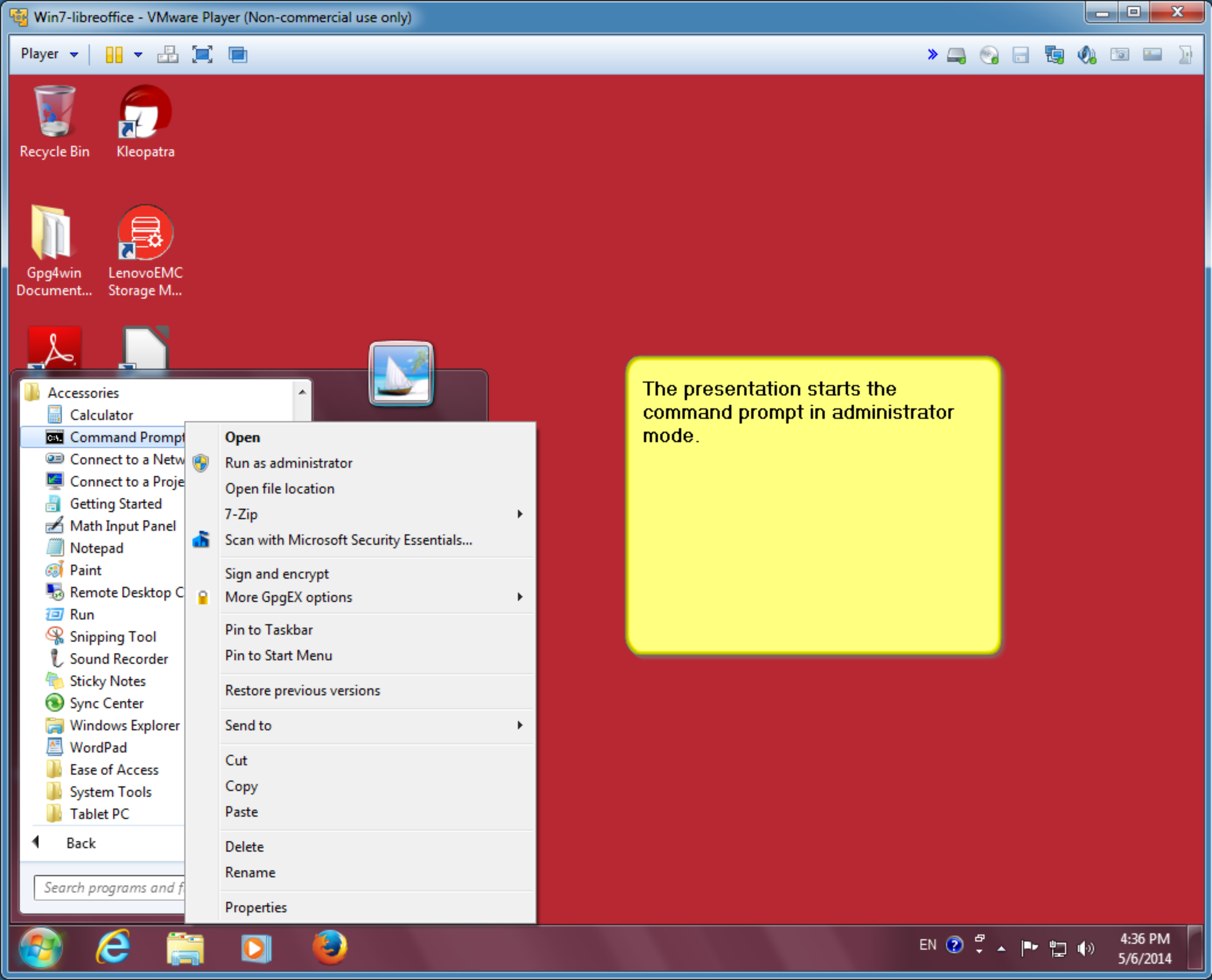
The presentation uses the IPsec Policies to configure a simple IPsec network. One system is a Windows 7 system. The other system is Windows 8.0 system. Both machines are on a IPv4 NAT network.

The primary reference is http://technet.microsoft.com/en-us/library/cc730656%28v=ws.10%29.aspx

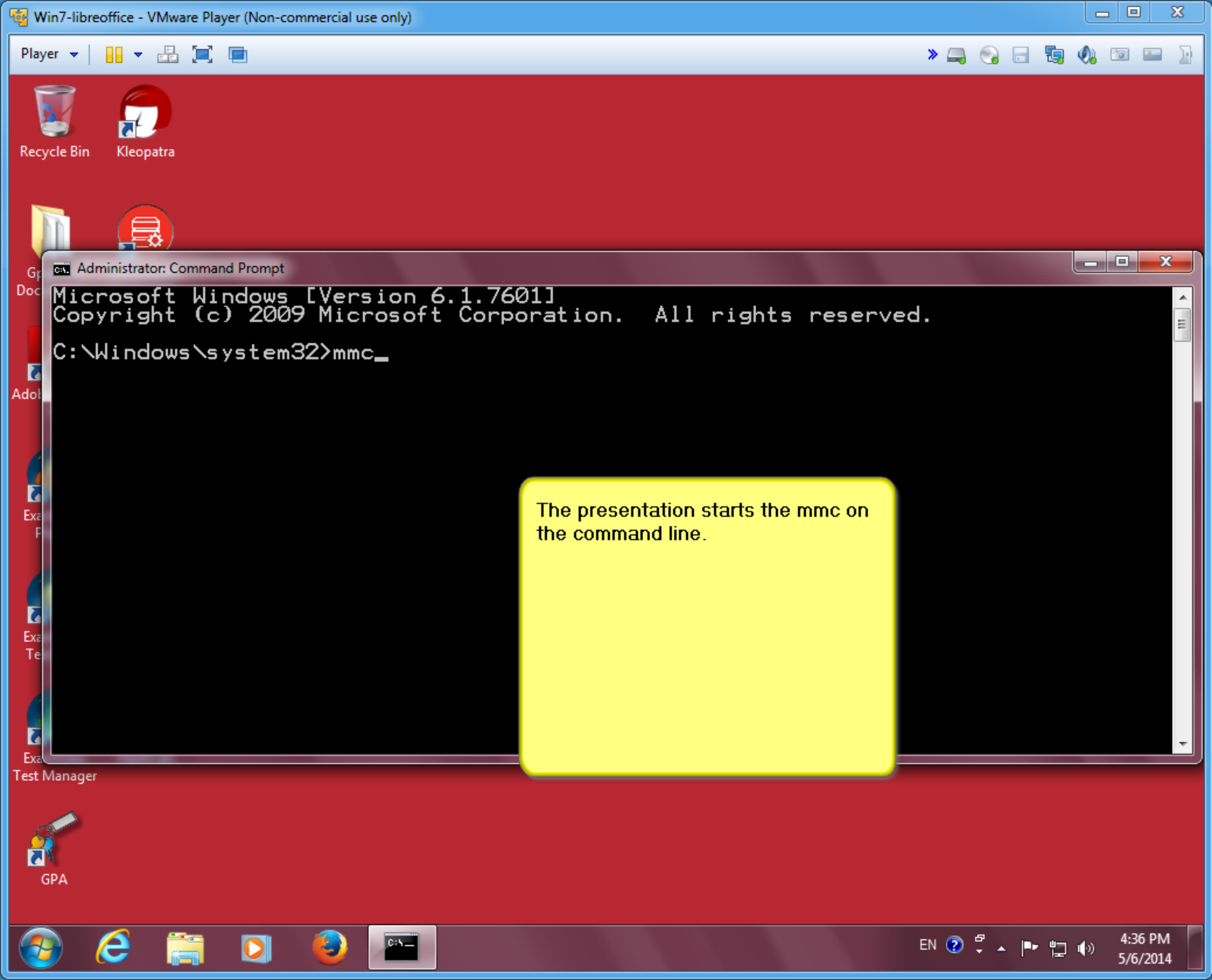
Preuss
5/6/2014



The presentation logs on to Windows 7 as an administrator.



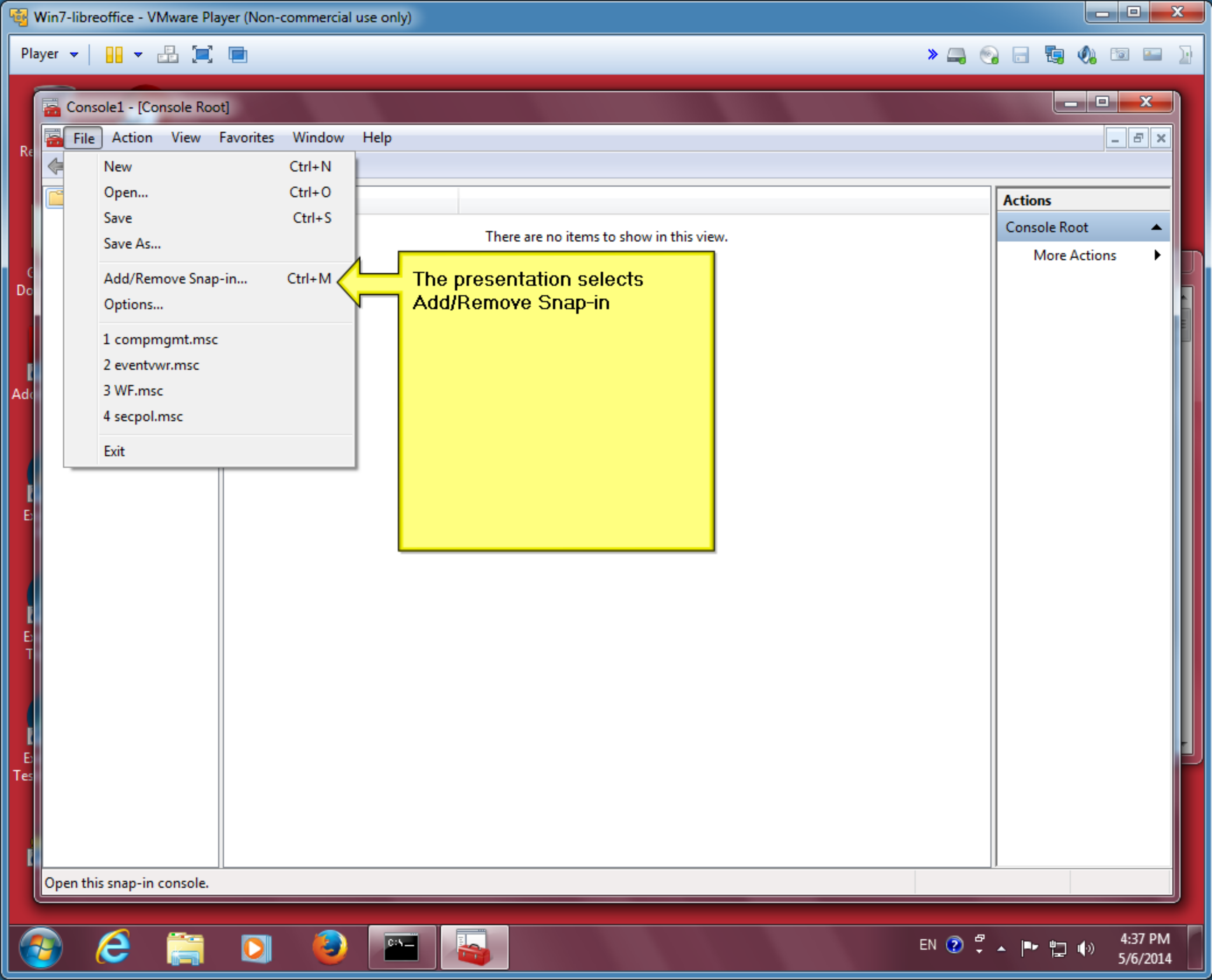
The presentation starts the command prompt in administrator mode.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Recycle Bin
Kleopatra
Administrator: Command Prompt
Test Manager
GPA
EN
4:36 PM
5/6/2014

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Windows\system32>mmc_
```

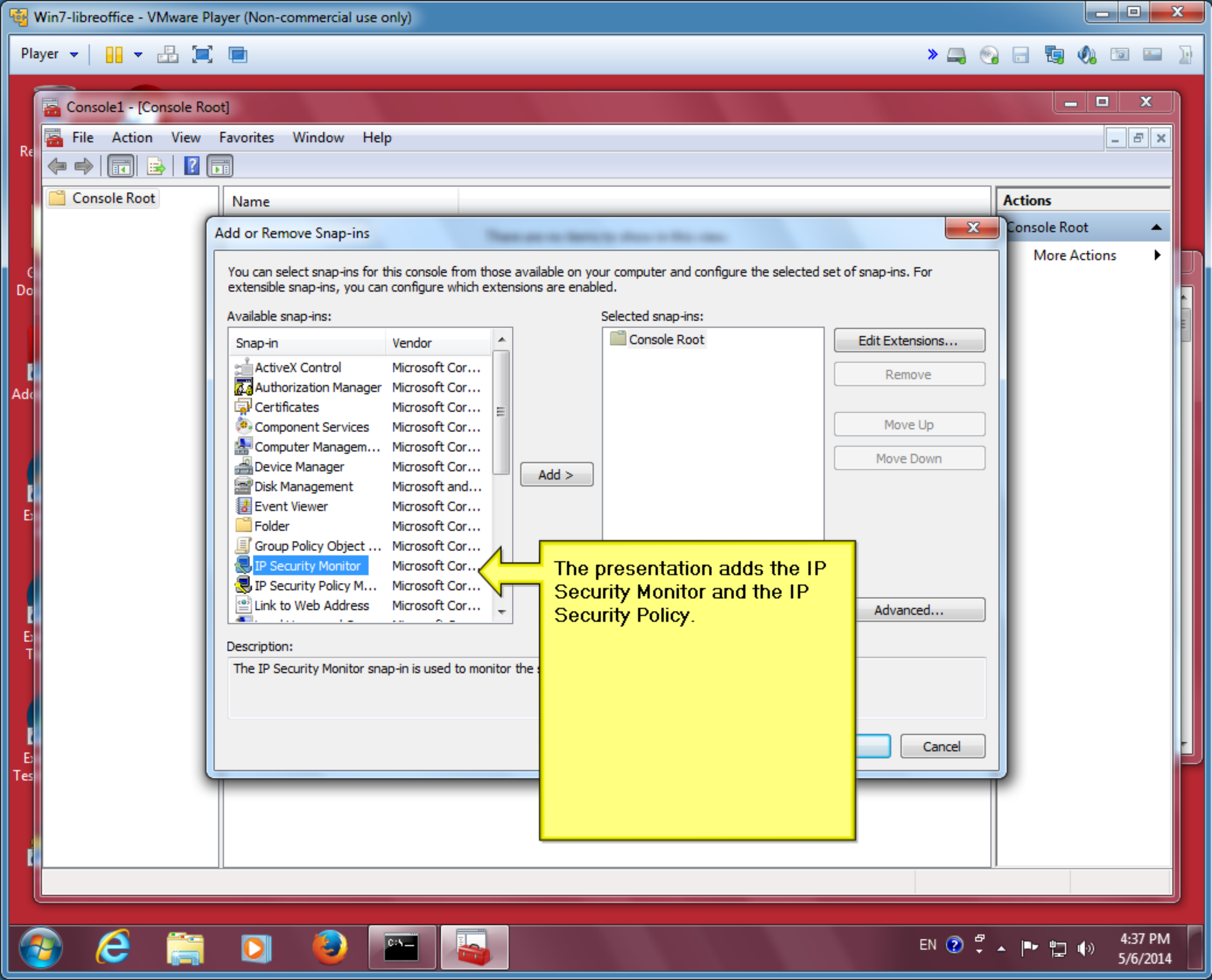
The presentation starts the mmc on the command line.



There are no items to show in this view.

The presentation selects Add/Remove Snap-in

Open this snap-in console.



Add or Remove Snap-ins

You can select snap-ins for this console from those available on your computer and configure the selected set of snap-ins. For extensible snap-ins, you can configure which extensions are enabled.

Available snap-ins:

Snap-in	Vendor
ActiveX Control	Microsoft Cor...
Authorization Manager	Microsoft Cor...
Certificates	Microsoft Cor...
Component Services	Microsoft Cor...
Computer Managem...	Microsoft Cor...
Device Manager	Microsoft Cor...
Disk Management	Microsoft and...
Event Viewer	Microsoft Cor...
Folder	Microsoft Cor...
Group Policy Object ...	Microsoft Cor...
IP Security Monitor	Microsoft Cor...
IP Security Policy M...	Microsoft Cor...
Link to Web Address	Microsoft Cor...

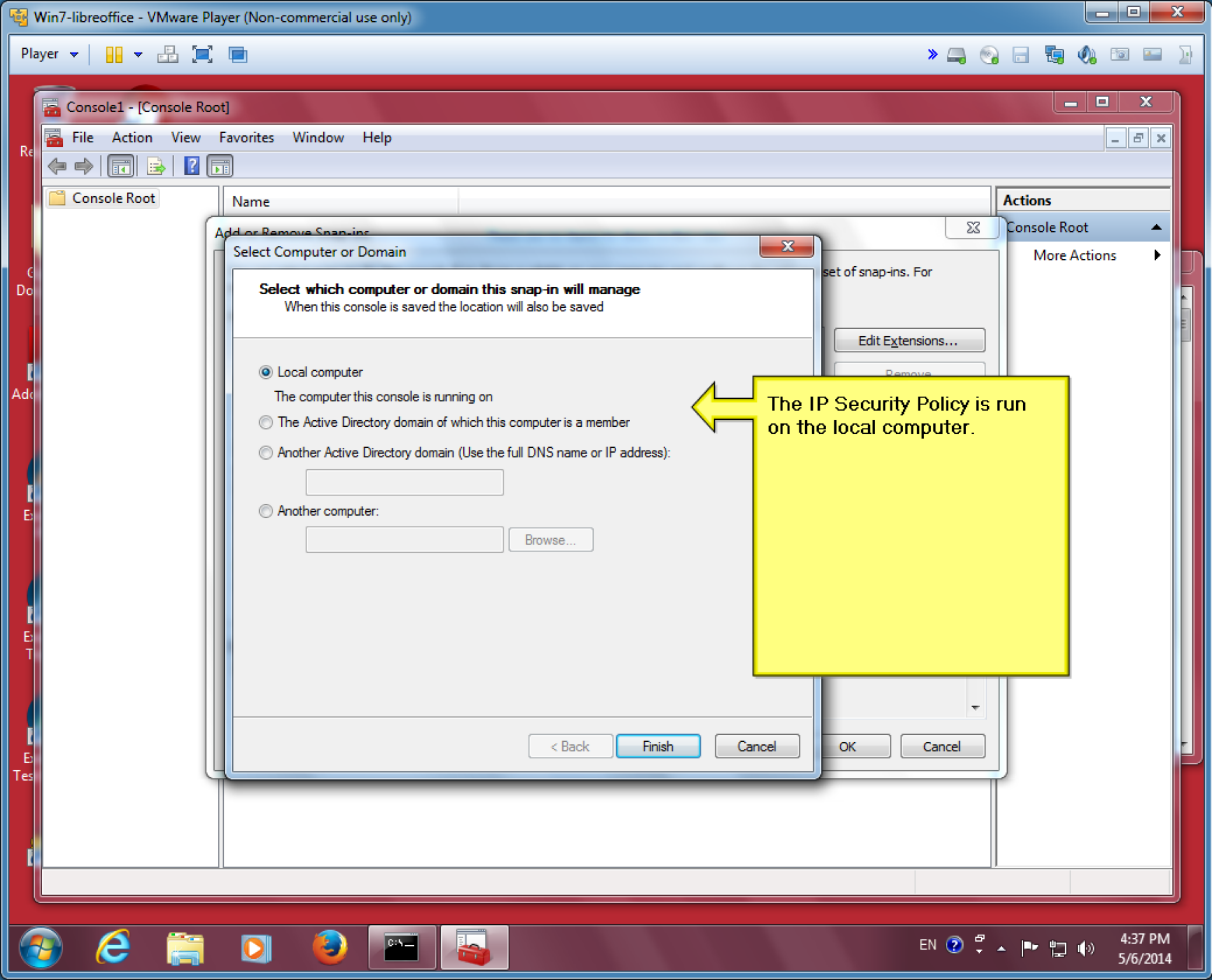
Selected snap-ins:

Console Root

Description:

The IP Security Monitor snap-in is used to monitor the

The presentation adds the IP Security Monitor and the IP Security Policy.



Select Computer or Domain

Select which computer or domain this snap-in will manage

When this console is saved the location will also be saved

● Local computer

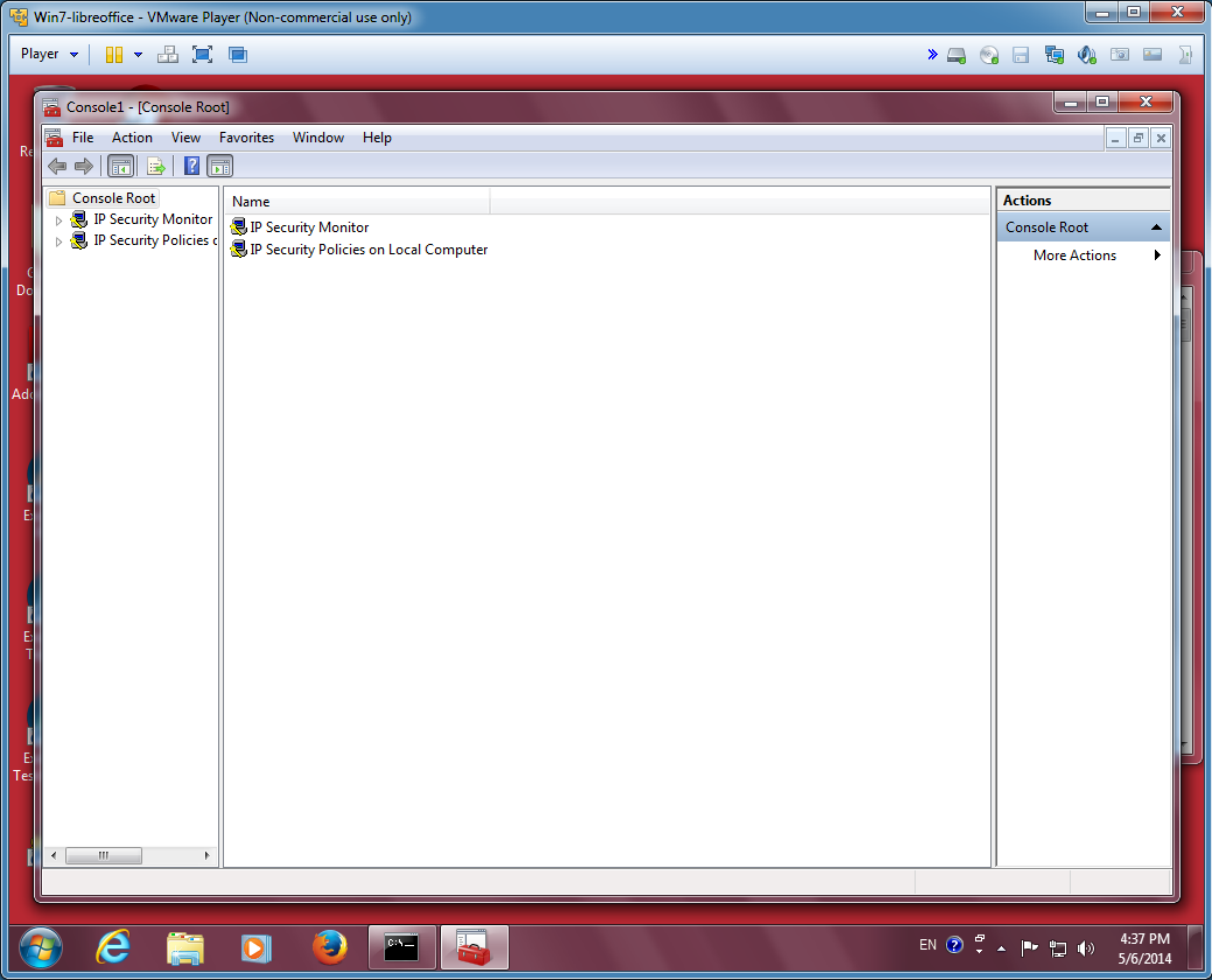
The computer this console is running on

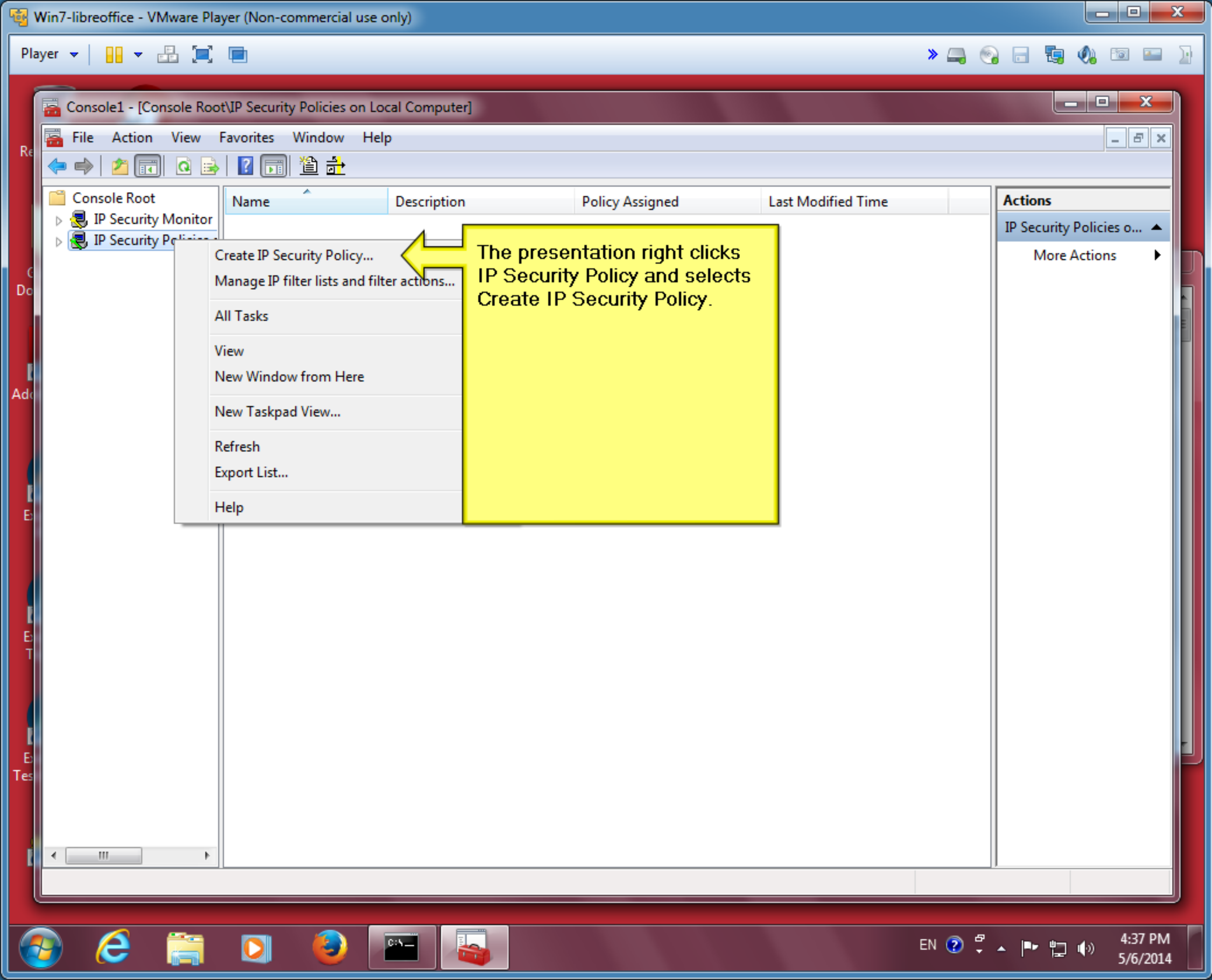
○ The Active Directory domain of which this computer is a member

○ Another Active Directory domain (Use the full DNS name or IP address):

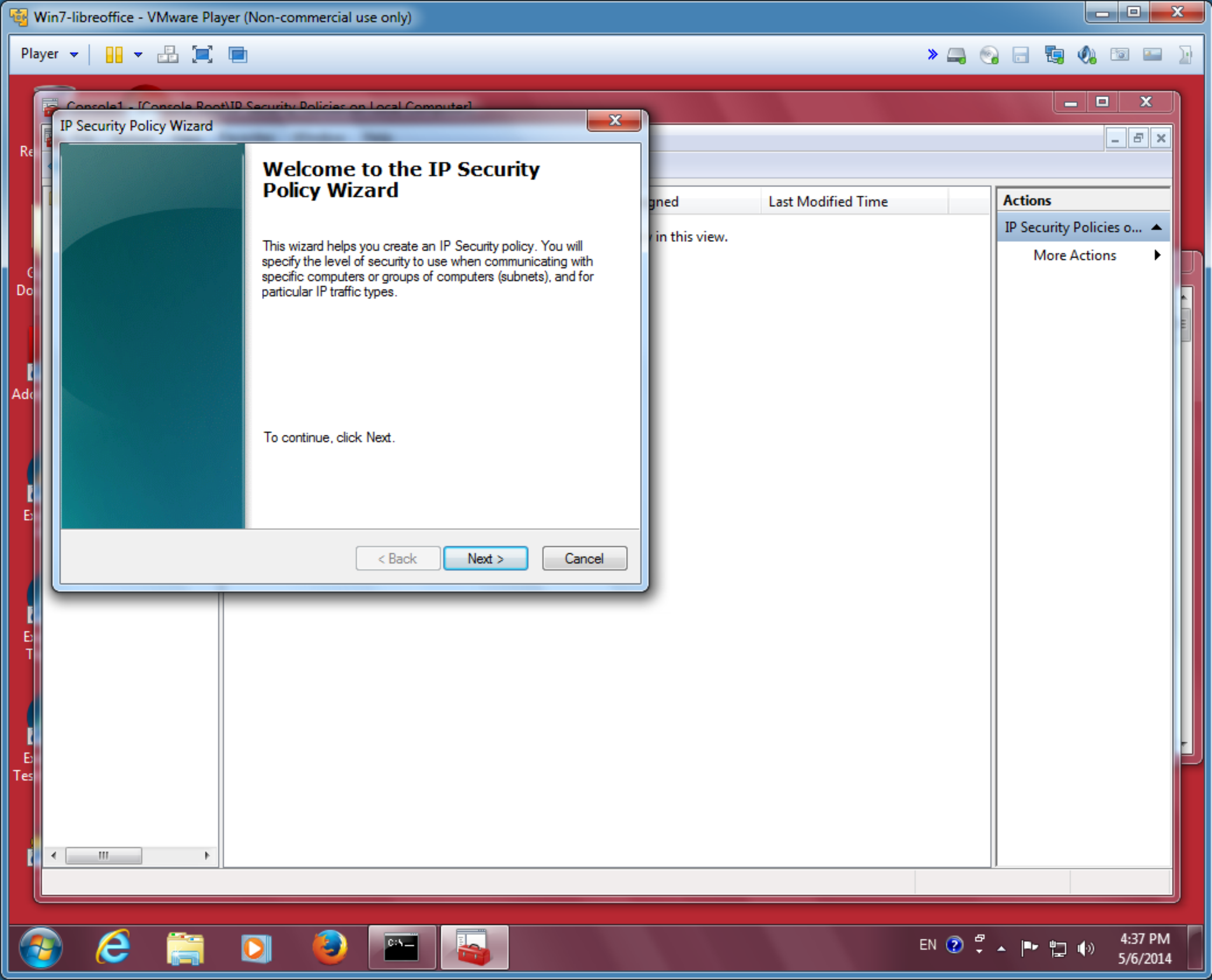
○ Another computer:

The IP Security Policy is run on the local computer.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root]
File
Action
View
Favorites
Window
Help
Console Root
IP Security Monitor
IP Security Policies c
Name
IP Security Monitor
IP Security Policies on Local Computer
Actions
Console Root
More Actions
EN
4:37 PM
5/6/2014



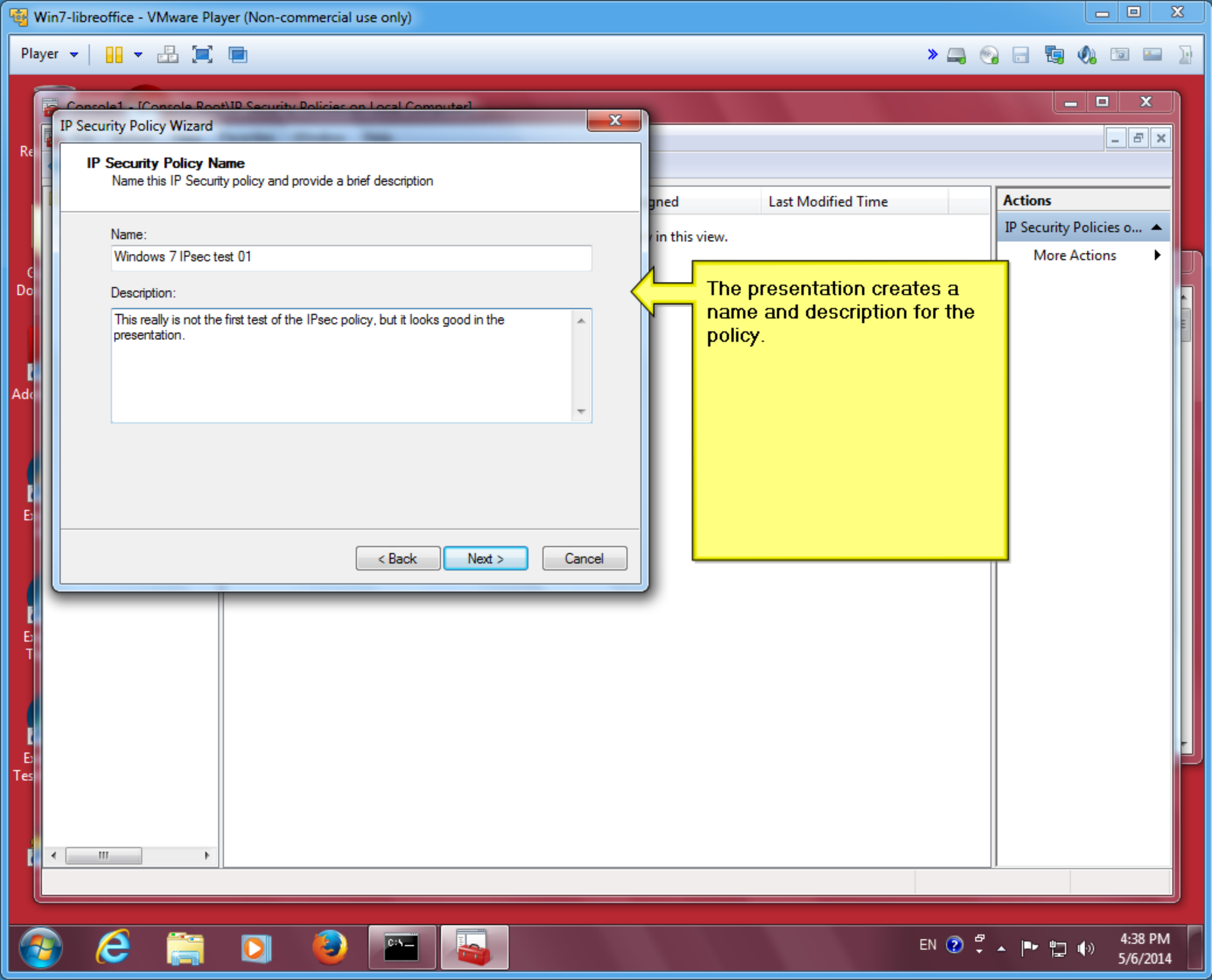
The presentation right clicks IP Security Policy and selects Create IP Security Policy.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
IP Security Policy Wizard
gned
Last Modified Time
in this view.
Actions
IP Security Policies o...
More Actions
< Back
Next >
Cancel
EN
4:37 PM
5/6/2014

Welcome to the IP Security Policy Wizard

This wizard helps you create an IP Security policy. You will specify the level of security to use when communicating with specific computers or groups of computers (subnets), and for particular IP traffic types.

To continue, click Next.



IP Security Policy Wizard

IP Security Policy Name

Name this IP Security policy and provide a brief description

Name:

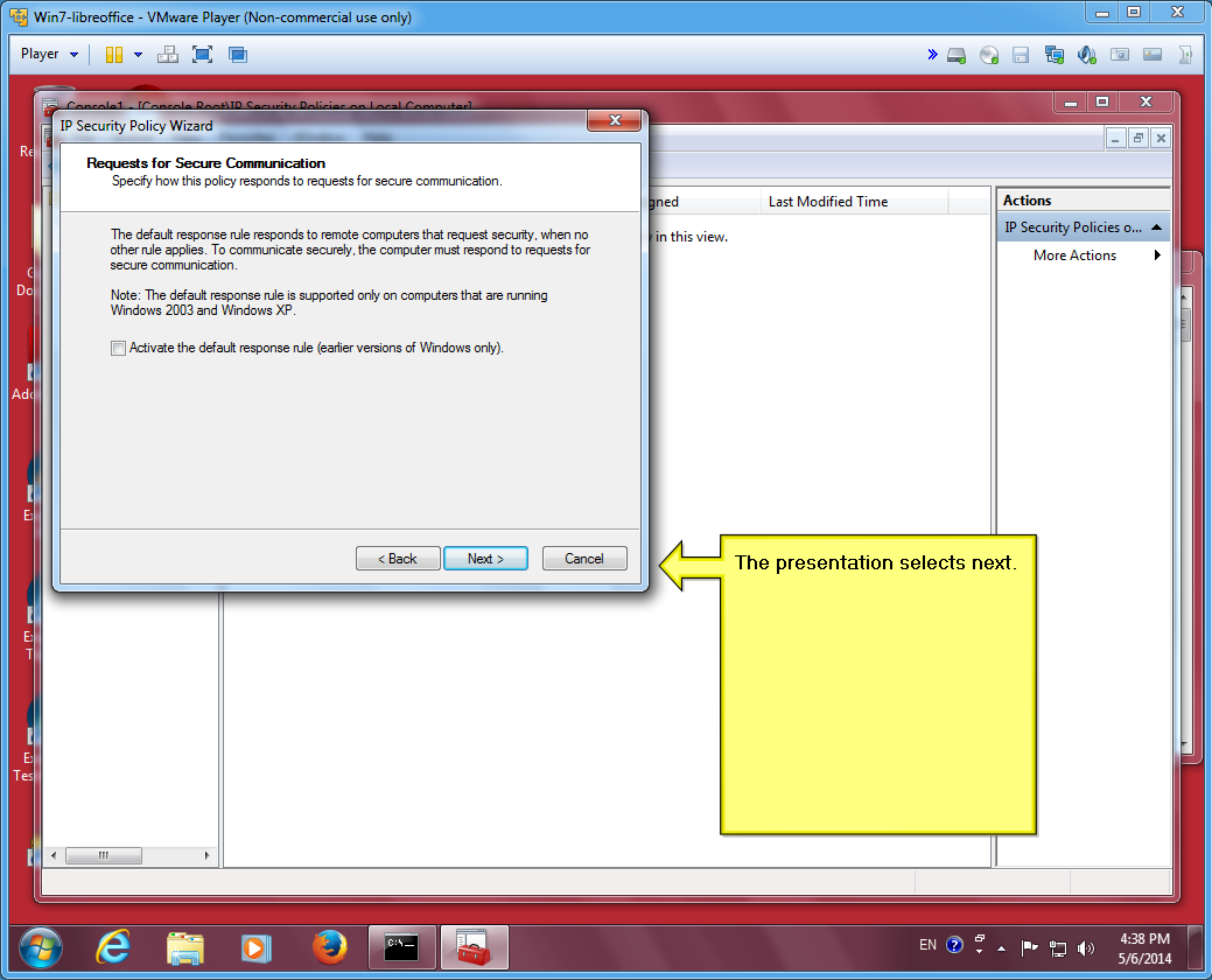
Windows 7 IPsec test 01

Description:

This really is not the first test of the IPsec policy, but it looks good in the presentation.

Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
Last Modified Time
in this view.
Actions
IP Security Policies o...
More Actions
< Back
Next >
Cancel
EN
4:38 PM
5/6/2014

The presentation creates a name and description for the policy.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
IP Security Policy Wizard
gned
Last Modified Time
in this view.
Actions
IP Security Policies o...
More Actions
< Back
Next >
Cancel
EN
4:38 PM
5/6/2014

Requests for Secure Communication

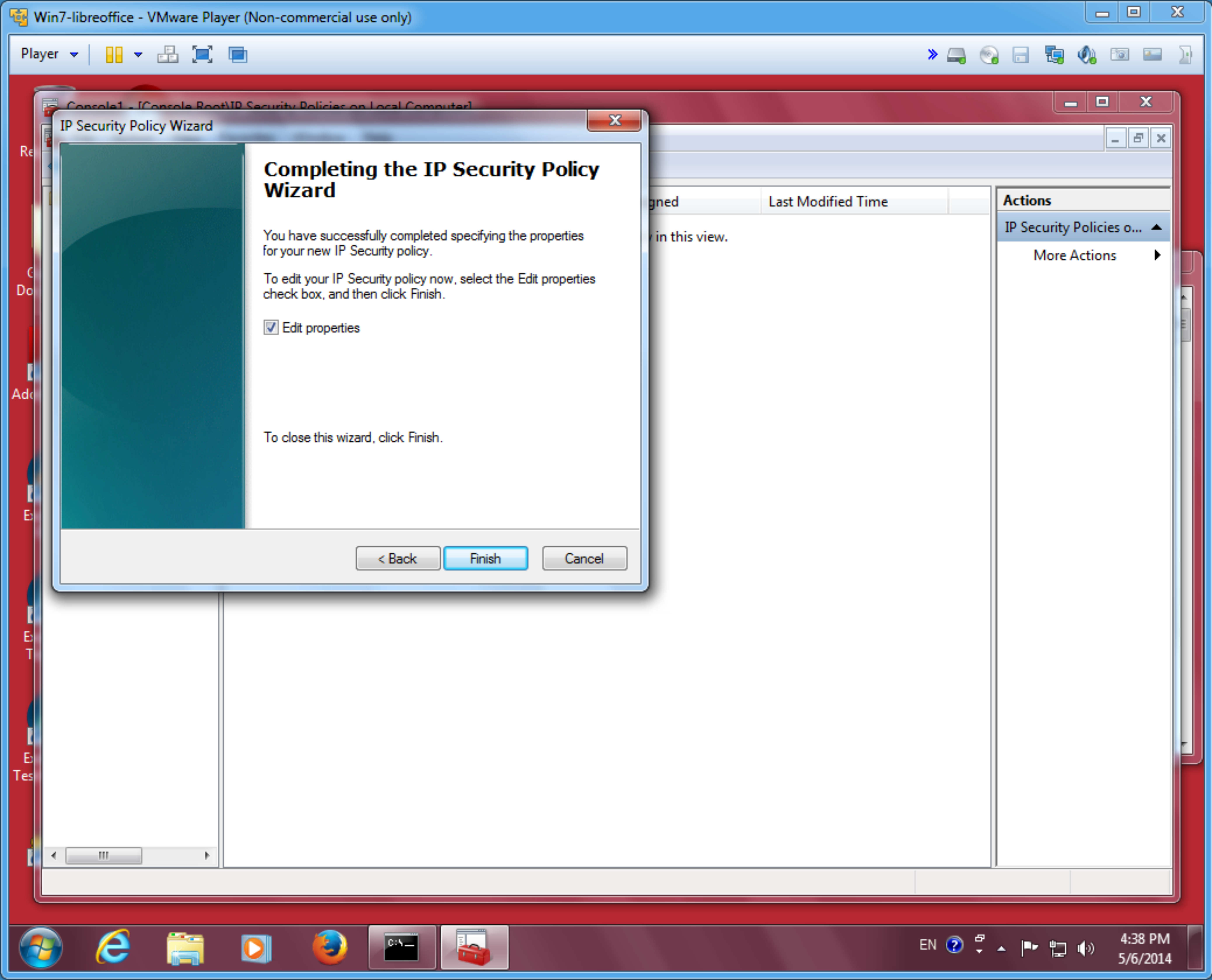
Specify how this policy responds to requests for secure communication.

The default response rule responds to remote computers that request security, when no other rule applies. To communicate securely, the computer must respond to requests for secure communication.

Note: The default response rule is supported only on computers that are running Windows 2003 and Windows XP.

□ Activate the default response rule (earlier versions of Windows only).

The presentation selects next.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
IP Security Policy Wizard
gned
Last Modified Time
in this view.
Actions
IP Security Policies o...
More Actions
< Back
Finish
Cancel
EN
4:38 PM
5/6/2014

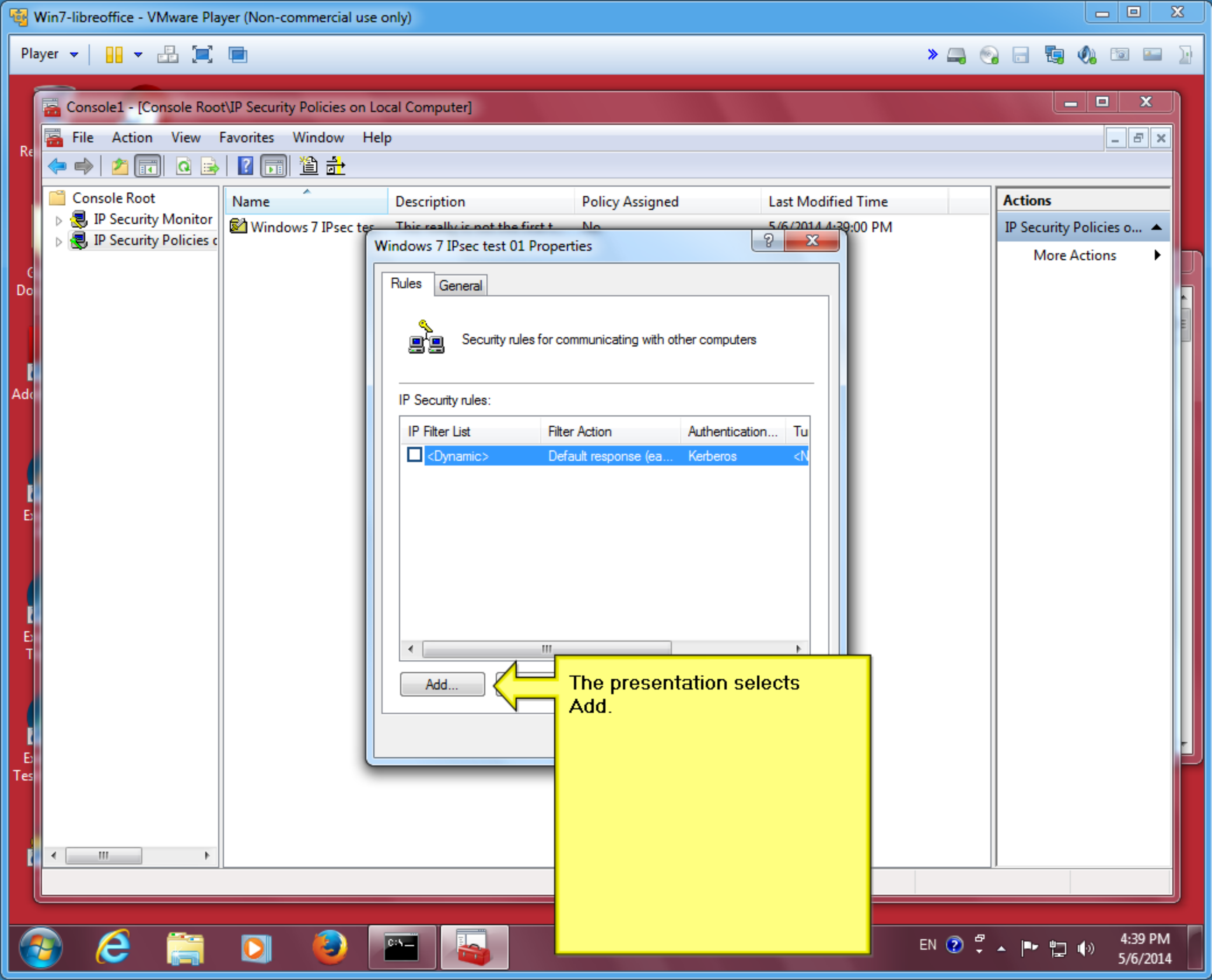
Completing the IP Security Policy Wizard

You have successfully completed specifying the properties for your new IP Security policy.

To edit your IP Security policy now, select the Edit properties check box, and then click Finish.

☑ Edit properties

To close this wizard, click Finish.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File
Action
View
Favorites
Window
Help
Console Root
IP Security Monitor
IP Security Policies c
Actions
IP Security Policies o...
More Actions
Rules
General
Add...
EN
4:39 PM
5/6/2014

Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

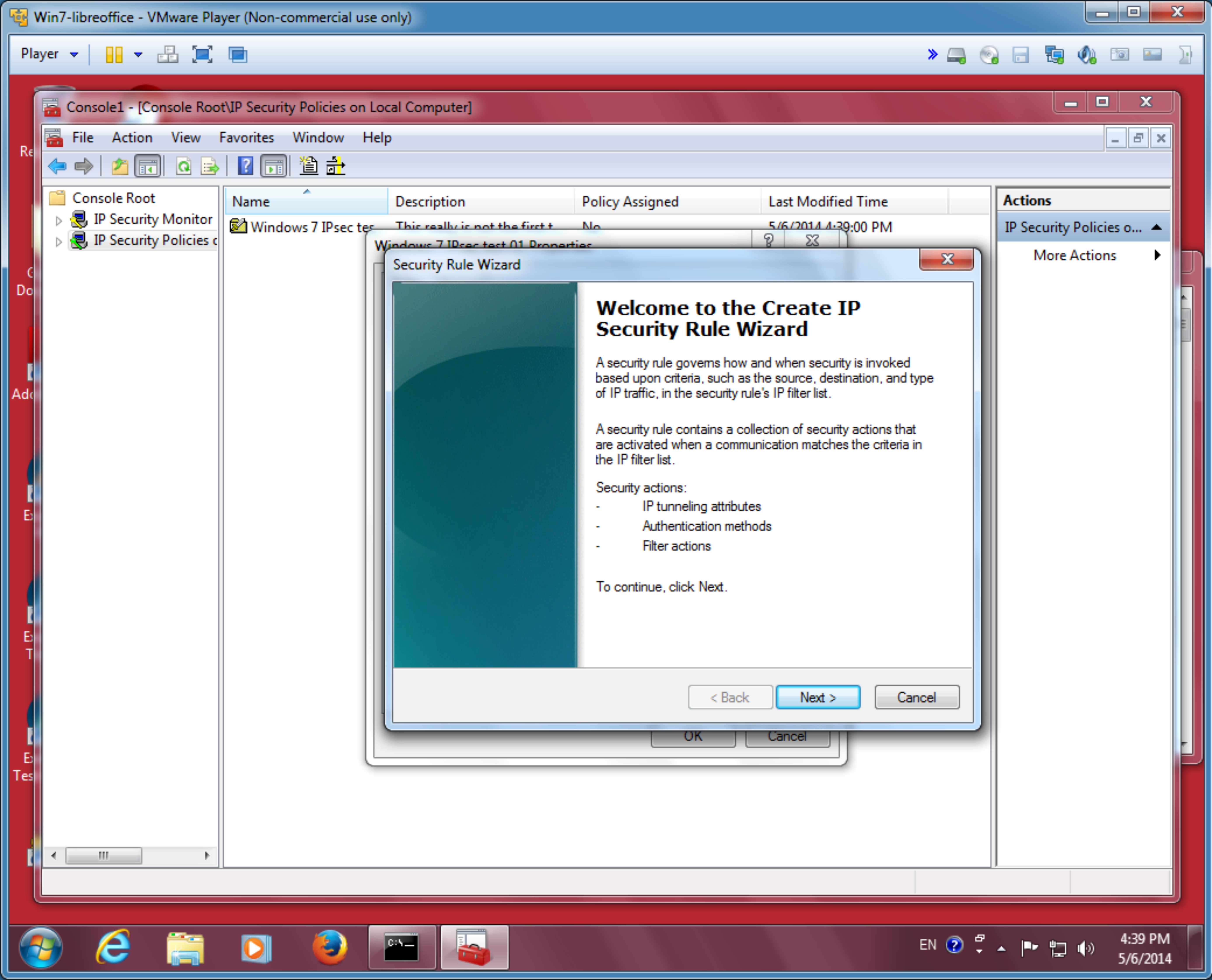
Windows 7 IPsec test 01 Properties

Security rules for communicating with other computers

IP Security rules:

	IP Filter List	Filter Action	Authentication...	Tu
□	<Dynamic>	Default response (ea...	Kerberos	<N

The presentation selects Add.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File
Action
View
Favorites
Window
Help
Console Root
IP Security Monitor
IP Security Policies c
Actions
IP Security Policies o...
More Actions
Windows 7 IPsec test 01 Properties
OK
Cancel
Security Rule Wizard
< Back
Next >
Cancel
EN
4:39 PM
5/6/2014

Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

Welcome to the Create IP Security Rule Wizard

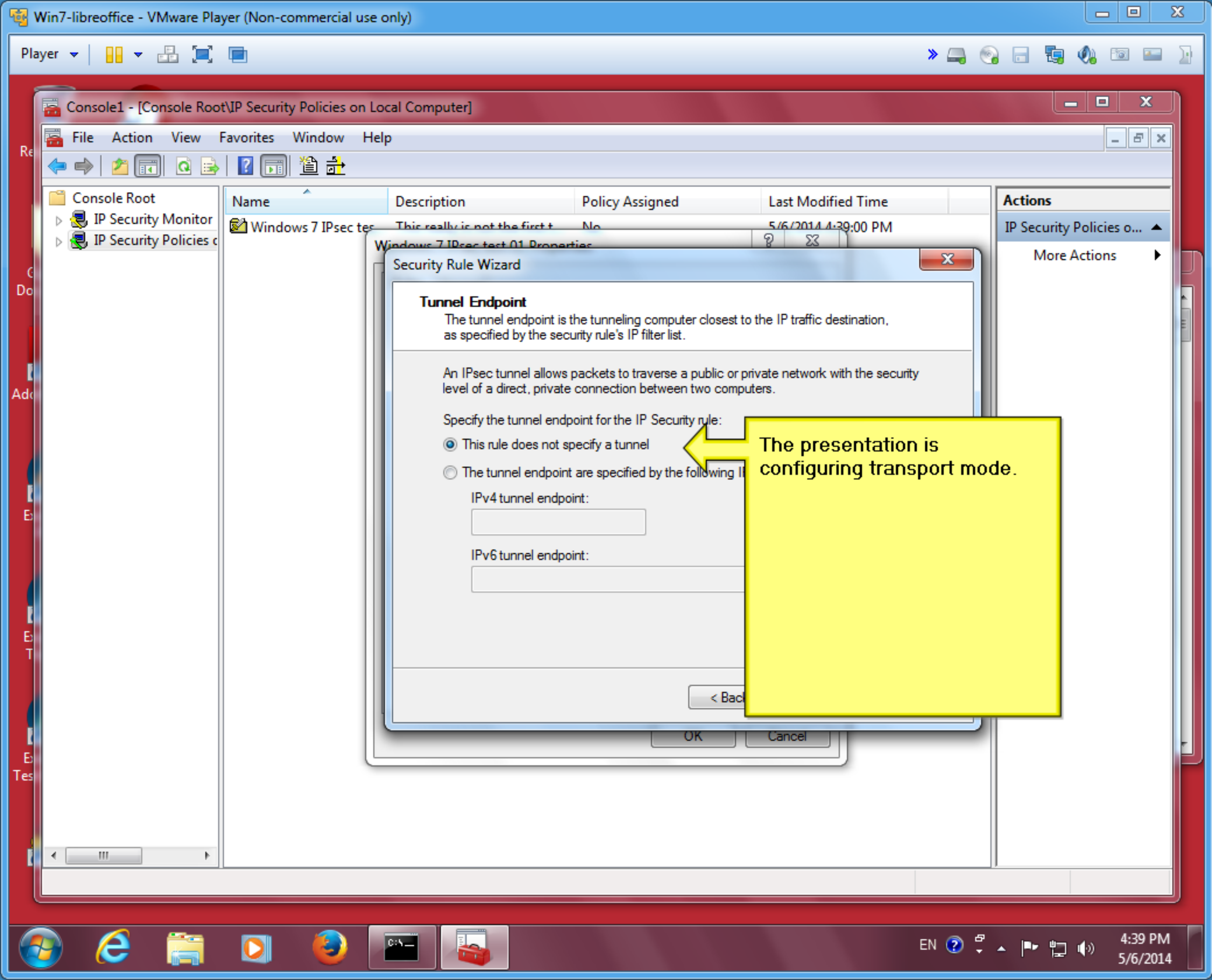
A security rule governs how and when security is invoked based upon criteria, such as the source, destination, and type of IP traffic, in the security rule's IP filter list.

A security rule contains a collection of security actions that are activated when a communication matches the criteria in the IP filter list.

Security actions:

- IP tunneling attributes
- Authentication methods
- Filter actions

To continue, click Next.



Tunnel Endpoint

The tunnel endpoint is the tunneling computer closest to the IP traffic destination, as specified by the security rule's IP filter list.

An IPsec tunnel allows packets to traverse a public or private network with the security level of a direct, private connection between two computers.

Specify the tunnel endpoint for the IP Security rule:

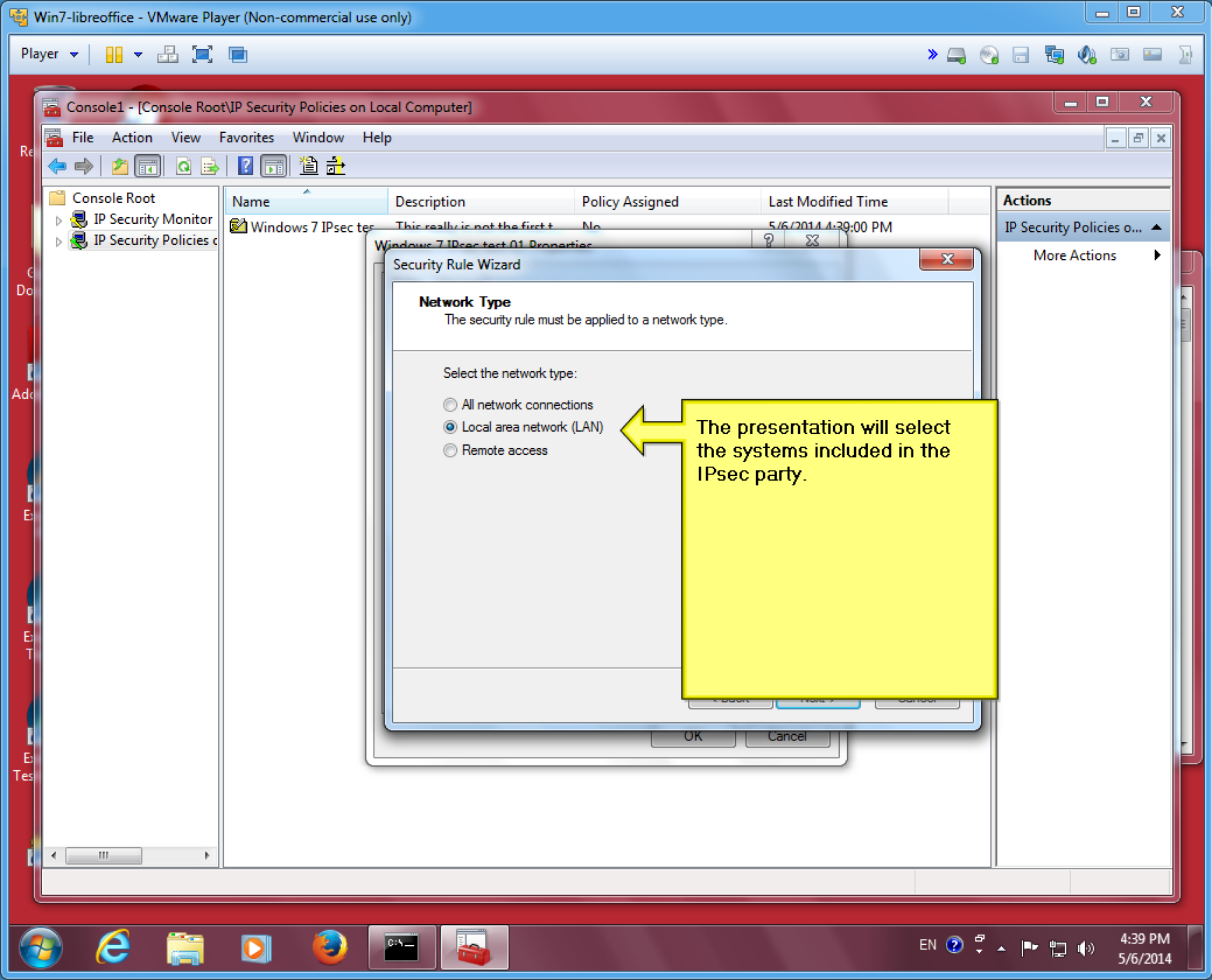
● This rule does not specify a tunnel

○ The tunnel endpoint are specified by the following IP

IPv4 tunnel endpoint:

IPv6 tunnel endpoint:

The presentation is configuring transport mode.



Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

Security Rule Wizard

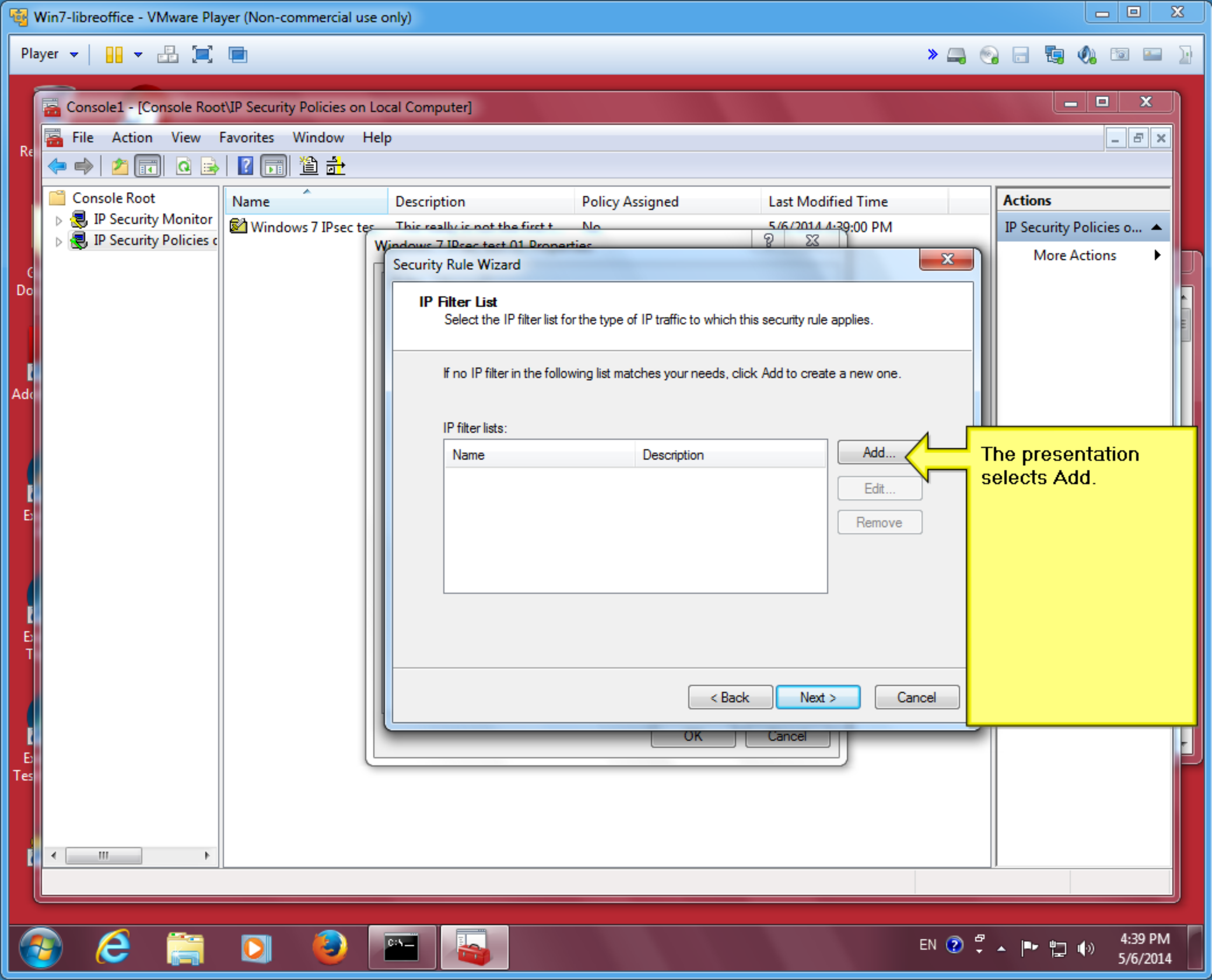
Network Type

The security rule must be applied to a network type.

Select the network type:

○ All network connections
● Local area network (LAN)
○ Remote access

The presentation will select the systems included in the IPsec party.



IP Filter List

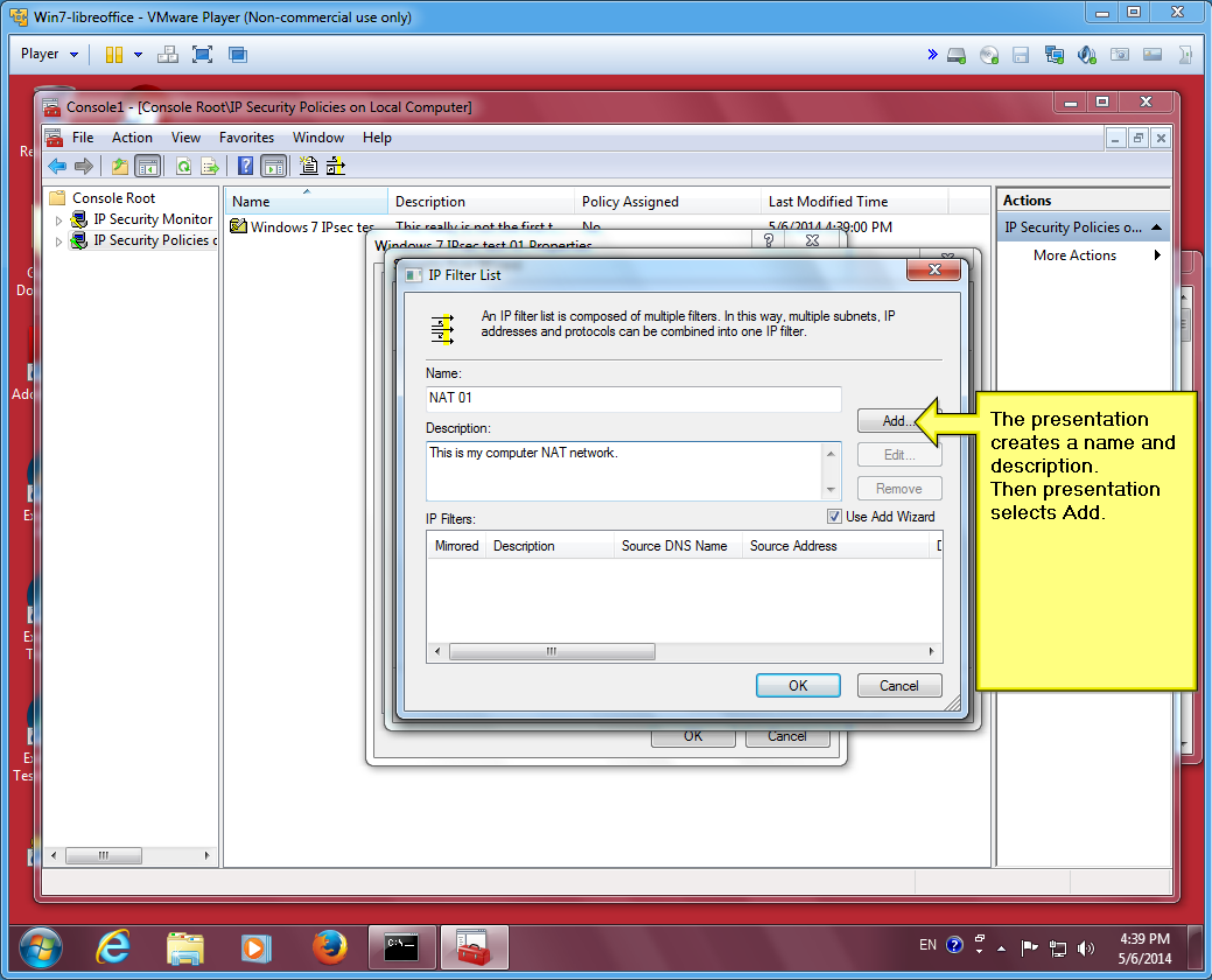
Select the IP filter list for the type of IP traffic to which this security rule applies.

If no IP filter in the following list matches your needs, click Add to create a new one.

IP filter lists:

Name	Description

The presentation selects Add.



An IP filter list is composed of multiple filters. In this way, multiple subnets, IP addresses and protocols can be combined into one IP filter.

Name:
NAT 01

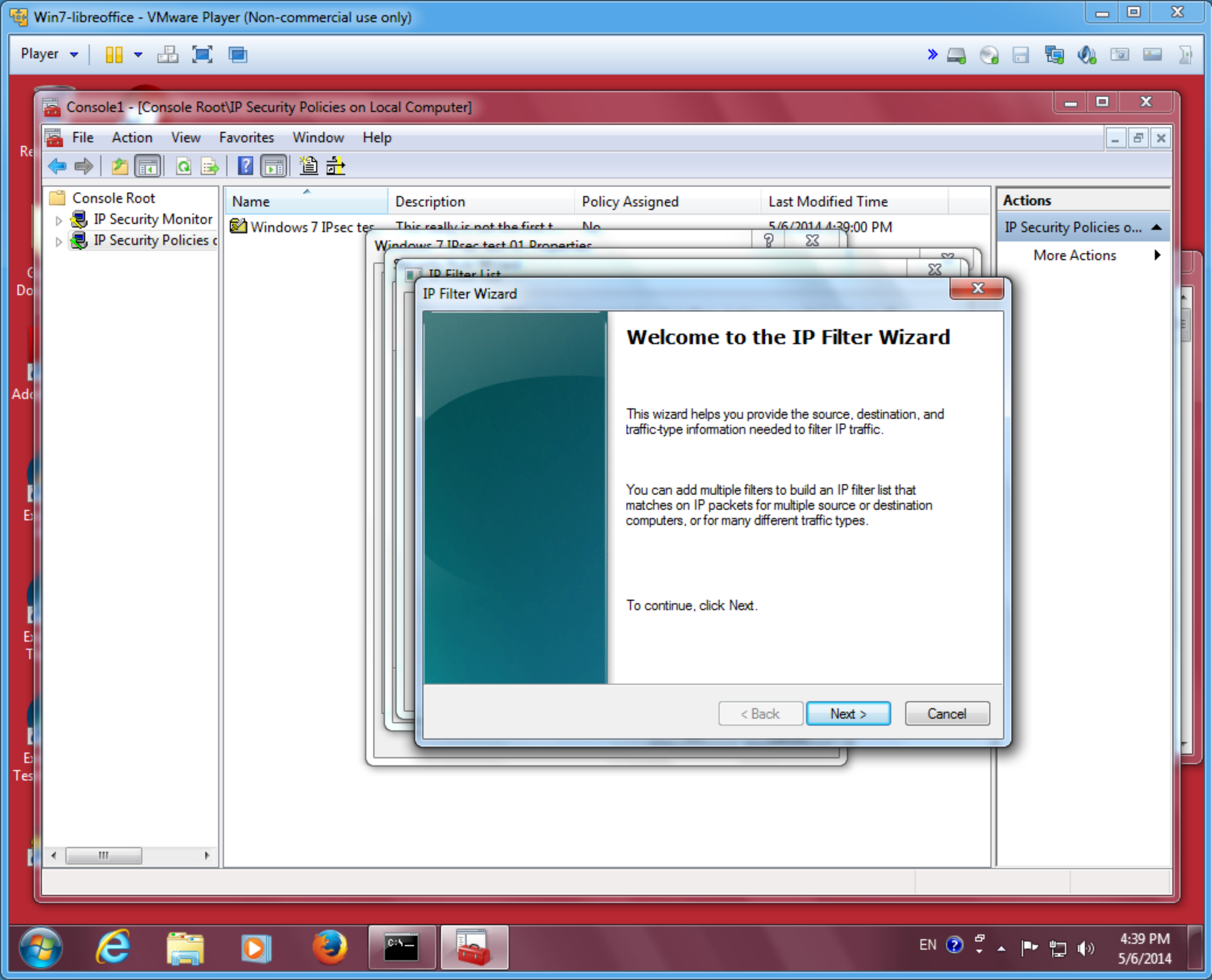
Description:
This is my computer NAT network.

IP Filters:

☑ Use Add Wizard

Mirrored	Description	Source DNS Name	Source Address

The presentation creates a name and description.
Then presentation selects Add.

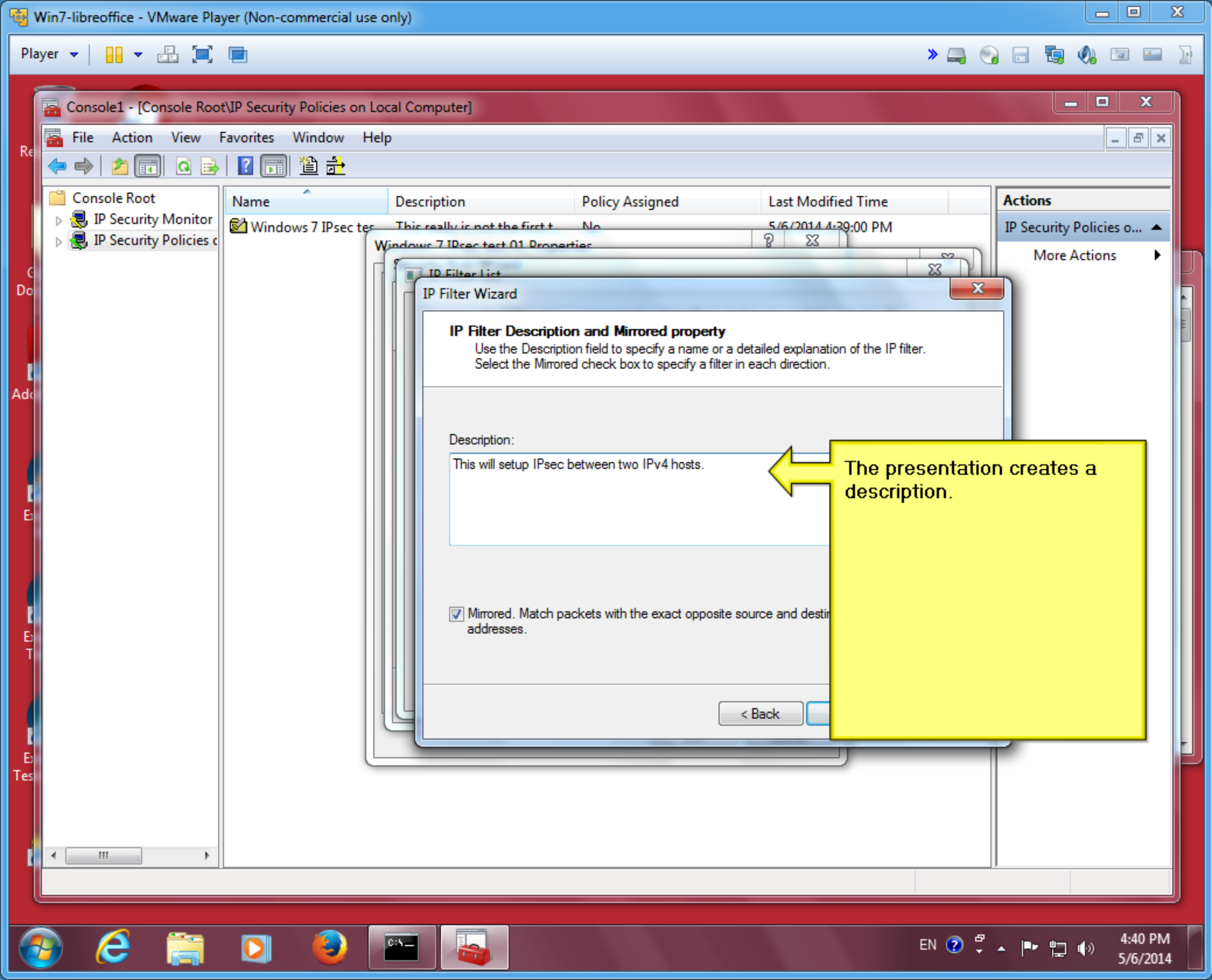


Welcome to the IP Filter Wizard

This wizard helps you provide the source, destination, and traffic-type information needed to filter IP traffic.

You can add multiple filters to build an IP filter list that matches on IP packets for multiple source or destination computers, or for many different traffic types.

To continue, click Next.



IP Filter Description and Mirrored property

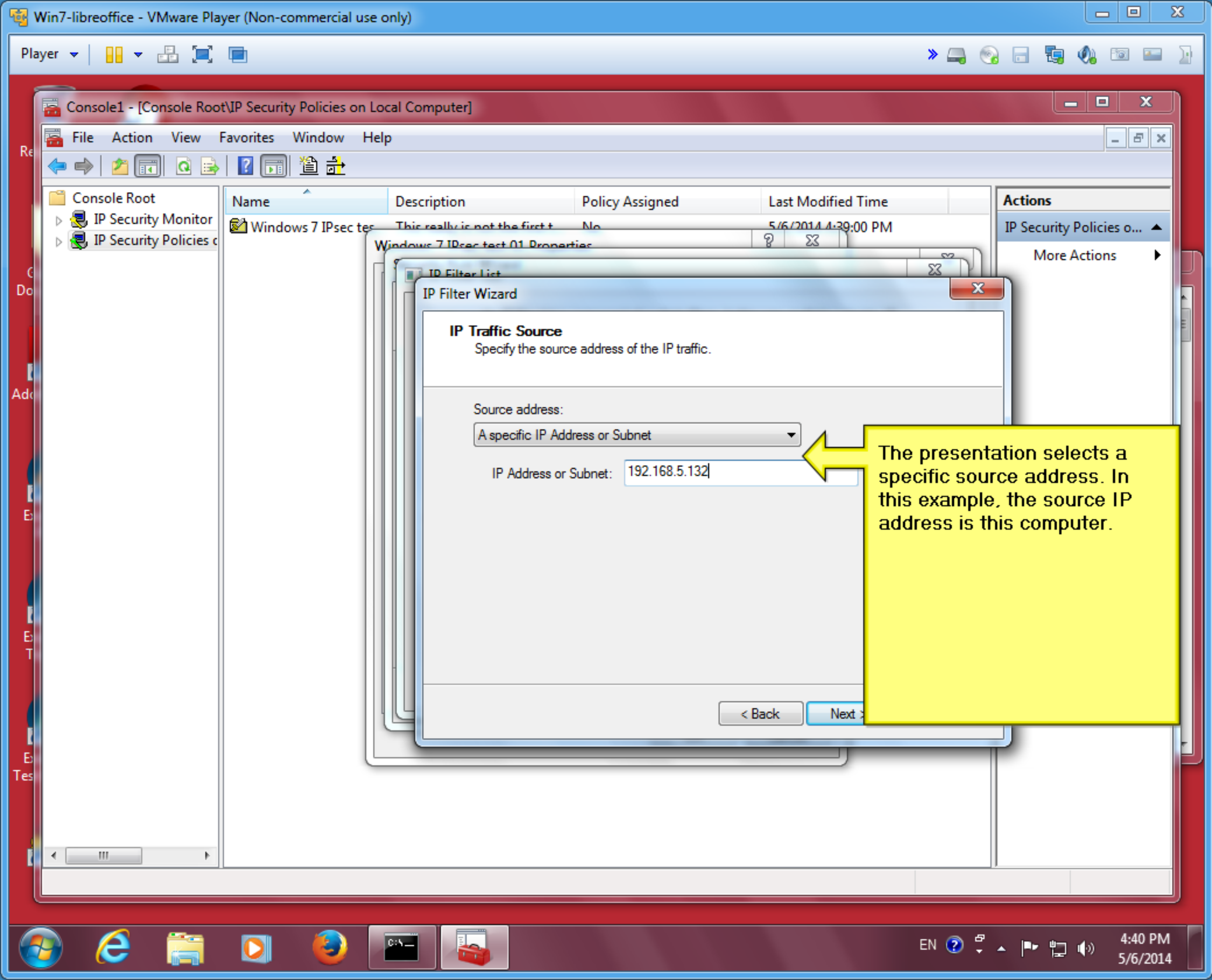
Use the Description field to specify a name or a detailed explanation of the IP filter.
Select the Mirrored check box to specify a filter in each direction.

Description:

This will setup IPsec between two IPv4 hosts.

☑ Mirrored. Match packets with the exact opposite source and desti
addresses.

The presentation creates a description.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File Action View Favorites Window Help
Console Root
IP Security Monitor
IP Security Policies c
Name
Description
Policy Assigned
Last Modified Time
Windows 7 IPsec tes
This really is not the first t
No
5/6/2014 4:39:00 PM
Actions
IP Security Policies o...
More Actions
Windows 7 IPsec test 01 Properties
IP Filter List
IP Filter Wizard
< Back
Next &gt;
EN
4:40 PM
5/6/2014

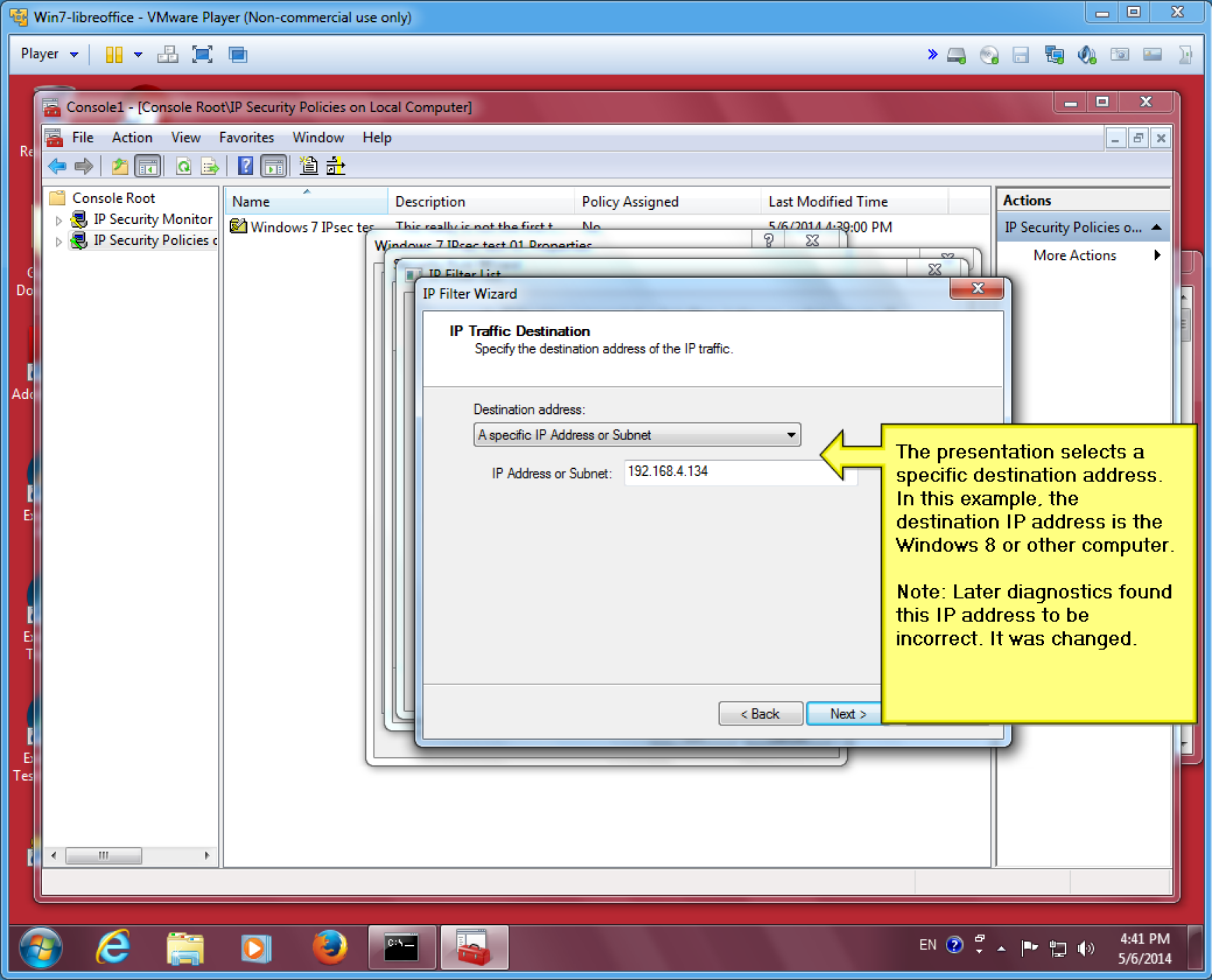
IP Traffic Source

Specify the source address of the IP traffic.

Source address: A specific IP Address or Subnet

IP Address or Subnet: 192.168.5.132

The presentation selects a specific source address. In this example, the source IP address is this computer.



IP Filter Wizard

IP Traffic Destination

Specify the destination address of the IP traffic.

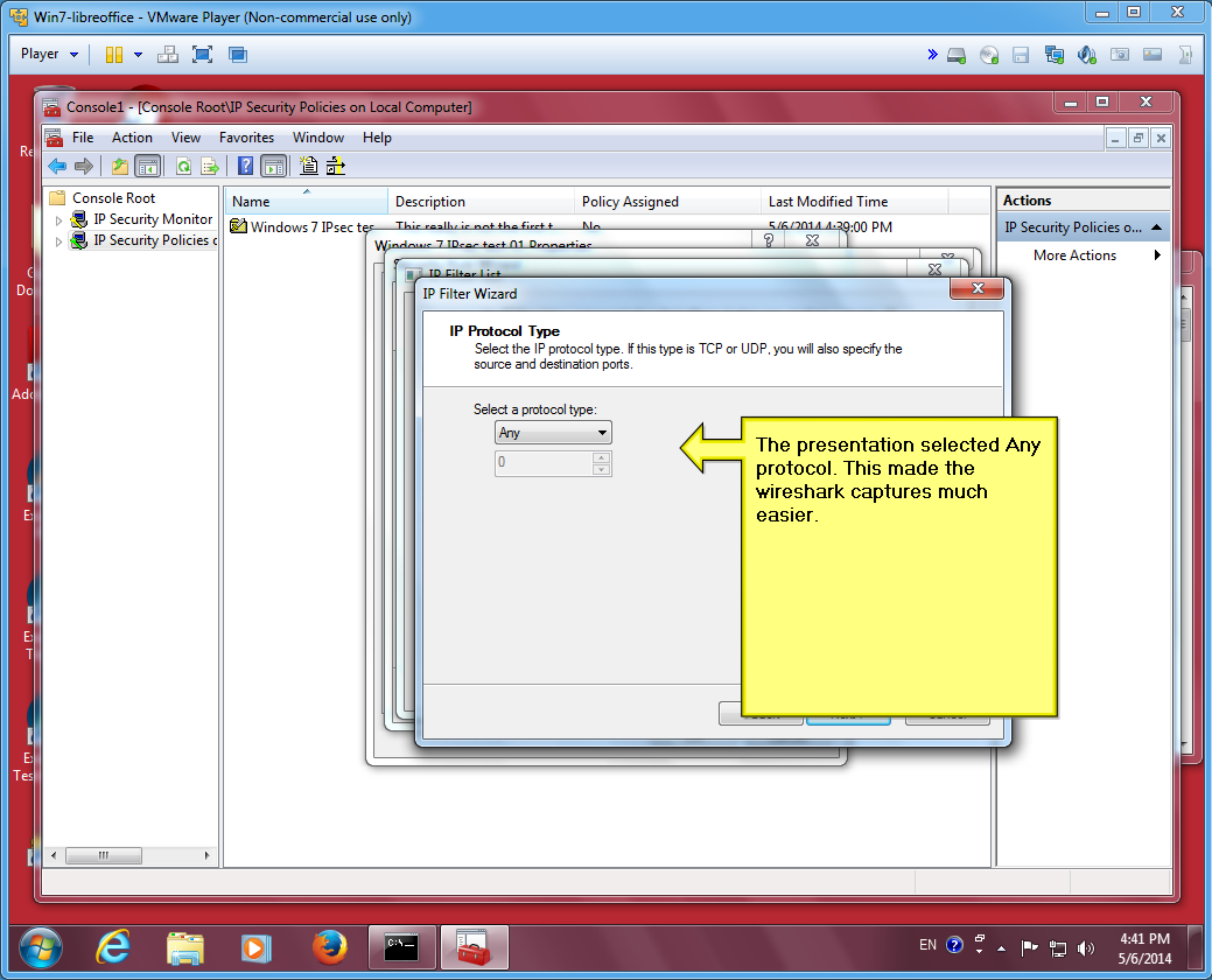
Destination address: A specific IP Address or Subnet

IP Address or Subnet: 192.168.4.134

< Back   Next >

The presentation selects a specific destination address. In this example, the destination IP address is the Windows 8 or other computer.

Note: Later diagnostics found this IP address to be incorrect. It was changed.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File Action View Favorites Window Help
Console Root
IP Security Monitor
IP Security Policies c
Name
Description
Policy Assigned
Last Modified Time
Windows 7 IPsec tes
This really is not the first t
No
5/6/2014 4:39:00 PM
Actions
IP Security Policies o...
More Actions
Windows 7 IPsec test 01 Properties
IP Filter List
IP Filter Wizard
4:41 PM
5/6/2014
EN

IP Protocol Type

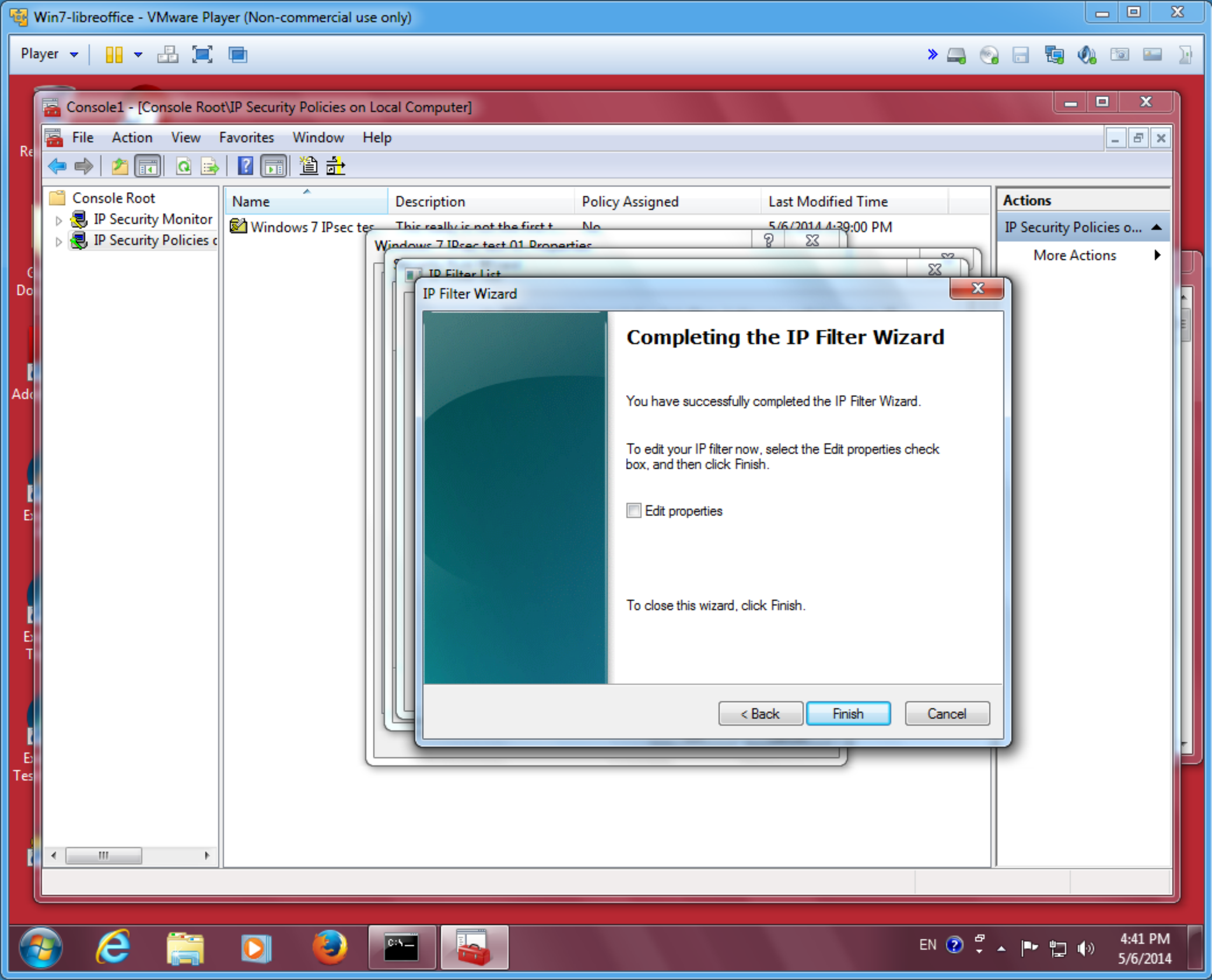
Select the IP protocol type. If this type is TCP or UDP, you will also specify the source and destination ports.

Select a protocol type:

Any

0

The presentation selected Any protocol. This made the wireshark captures much easier.



Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File Action View Favorites Window Help
Console Root
IP Security Monitor
IP Security Policies c
Name
Description
Policy Assigned
Last Modified Time
Actions
IP Security Policies o...
More Actions
Windows 7 IPsec test 01 Properties
IP Filter List
IP Filter Wizard
< Back
Finish
Cancel
EN
4:41 PM
5/6/2014

Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

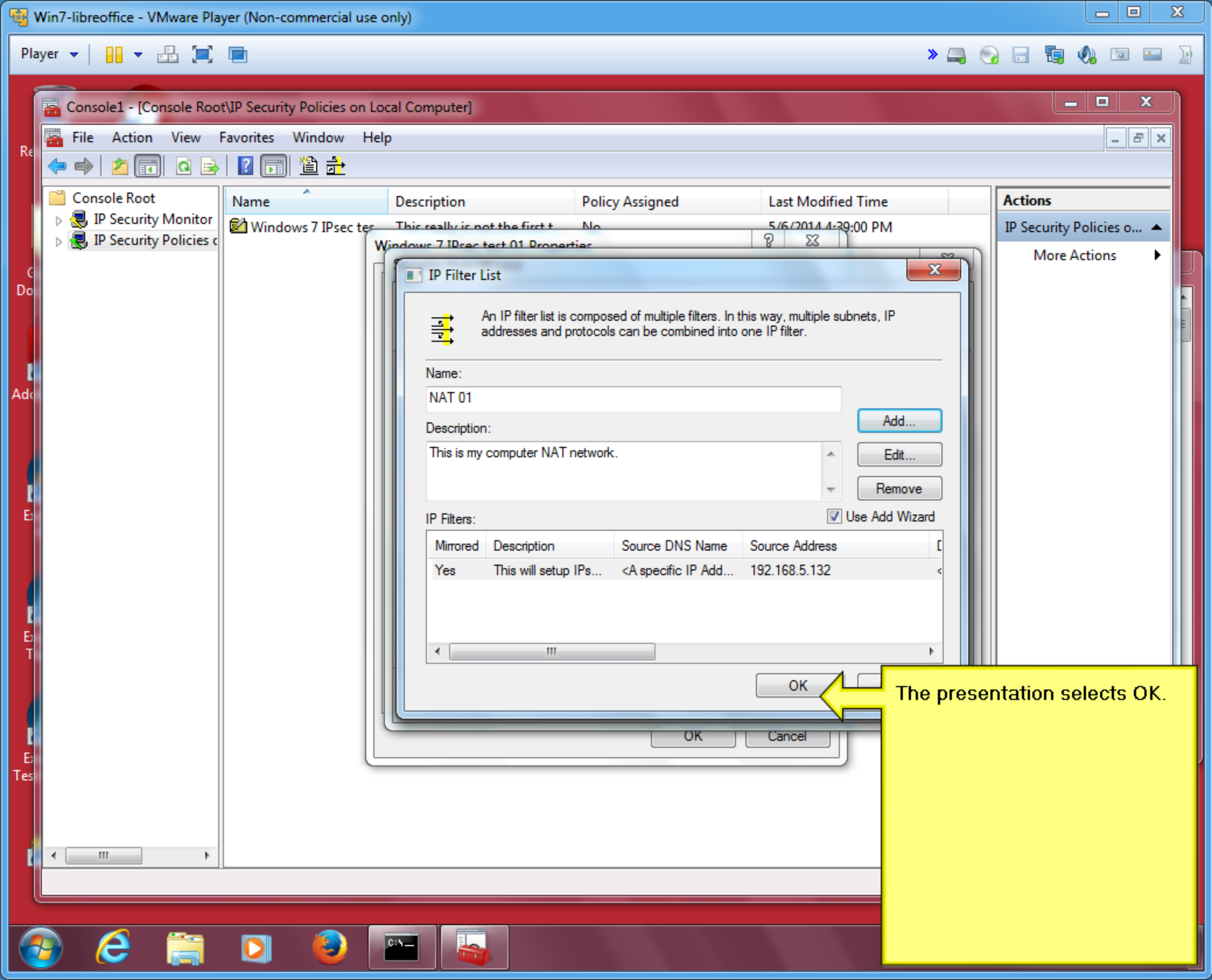
Completing the IP Filter Wizard

You have successfully completed the IP Filter Wizard.

To edit your IP filter now, select the Edit properties check box, and then click Finish.

□ Edit properties

To close this wizard, click Finish.



Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

An IP filter list is composed of multiple filters. In this way, multiple subnets, IP addresses and protocols can be combined into one IP filter.

Name:
NAT 01

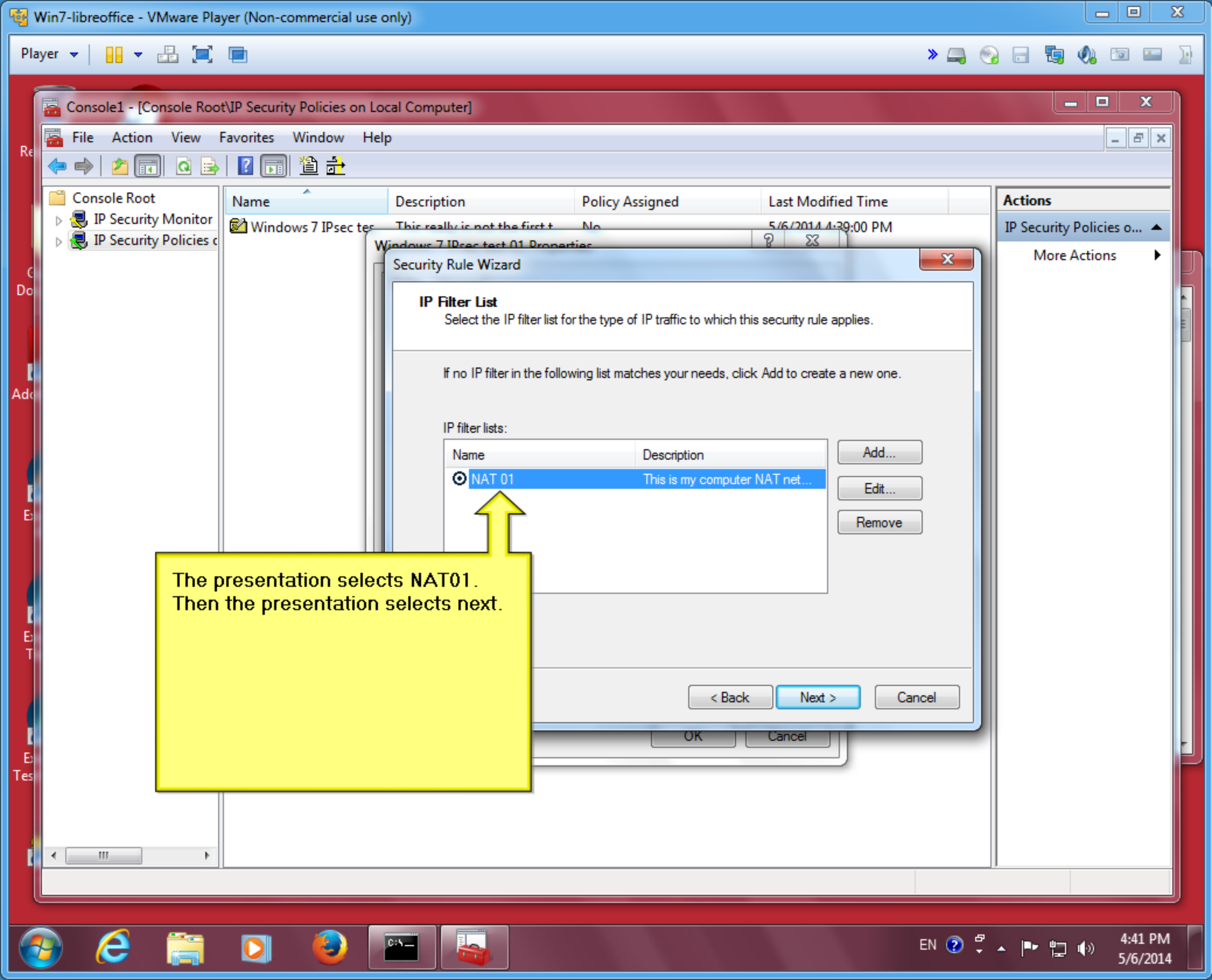
Description:
This is my computer NAT network.

IP Filters:

☑ Use Add Wizard

Mirrored	Description	Source DNS Name	Source Address
Yes	This will setup IPs...	<A specific IP Add...	192.168.5.132

The presentation selects OK.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File Action View Favorites Window Help
Console Root
IP Security Monitor
IP Security Policies o
Name
Description
Policy Assigned
Last Modified Time
Windows 7 IPsec tes
This really is not the first t
No
5/6/2014 4:39:00 PM
Windows 7 IPsec test 01 Properties
Actions
IP Security Policies o...
More Actions
OK
Cancel
EN
4:41 PM
5/6/2014

Security Rule Wizard

IP Filter List

Select the IP filter list for the type of IP traffic to which this security rule applies.

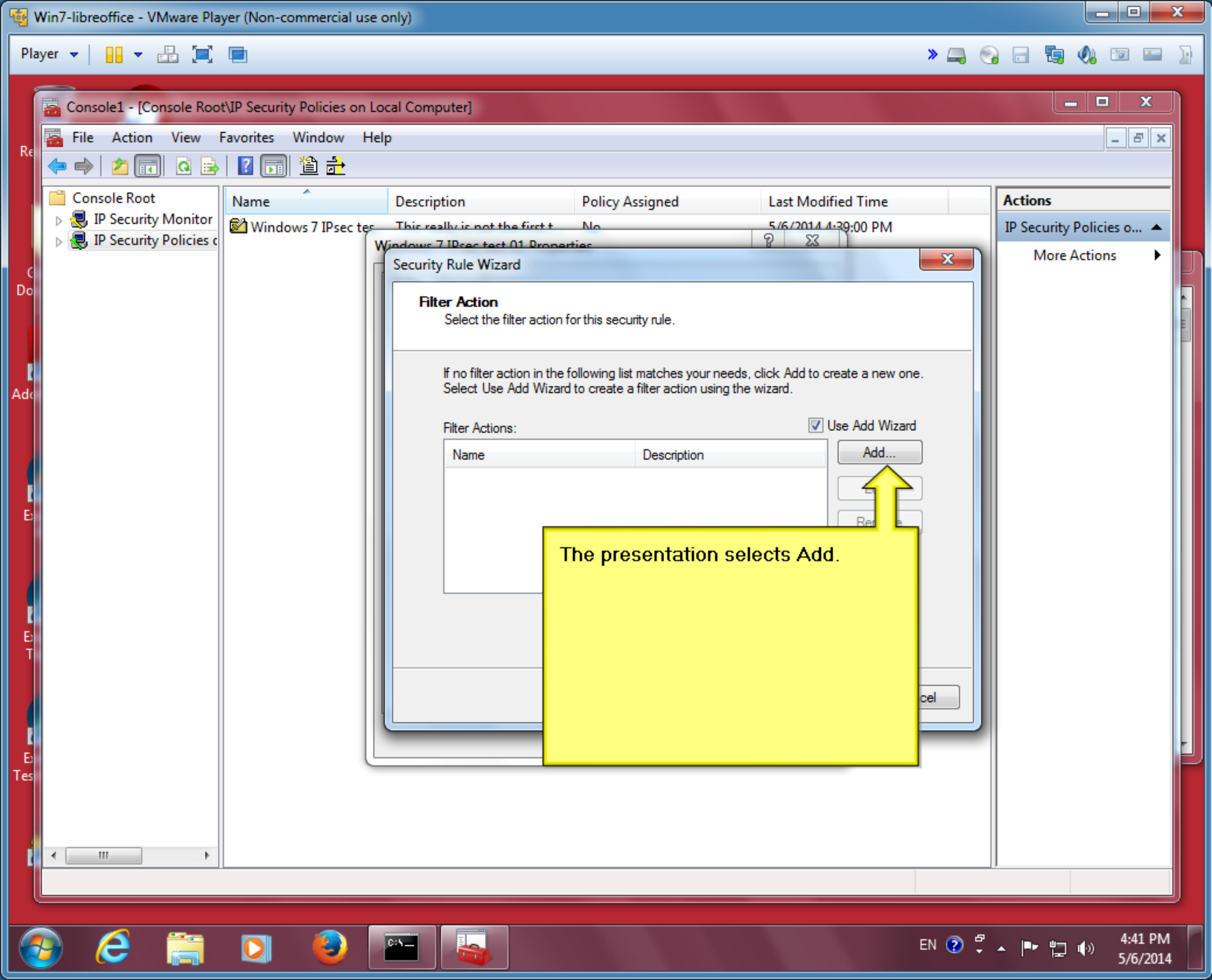
If no IP filter in the following list matches your needs, click Add to create a new one.

IP filter lists:

Name	Description
● NAT 01	This is my computer NAT net...

Add...
Edit...
Remove
< Back
Next >
Cancel

The presentation selects NAT01.
Then the presentation selects next.



Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File Action View Favorites Window Help
Console Root
IP Security Monitor
IP Security Policies c
Name
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Policy Assigned
Last Modified Time
Windows 7 IPsec tes
This really is not the first t
No
5/6/2014 4:39:00 PM
Windows 7 IPsec test 01 Properties
Actions
IP Security Policies o...
More Actions
Security Rule Wizard

Filter Action

Select the filter action for this security rule.

If no filter action in the following list matches your needs, click Add to create a new one. Select Use Add Wizard to create a filter action using the wizard.

Filter Actions:

☑ Use Add Wizard

Name	Description

Add...
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cel
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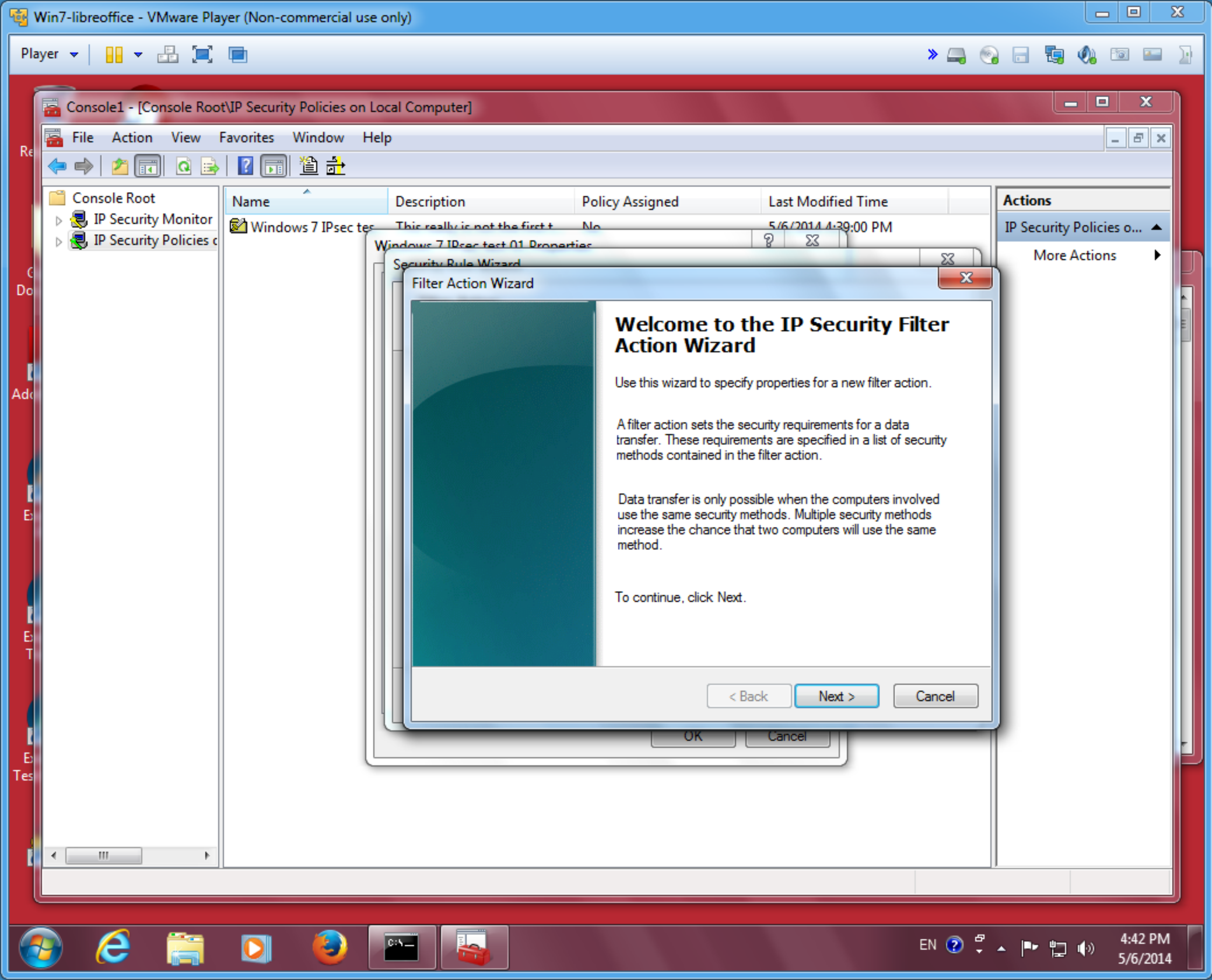
5/6/2014

The presentation selects Add.



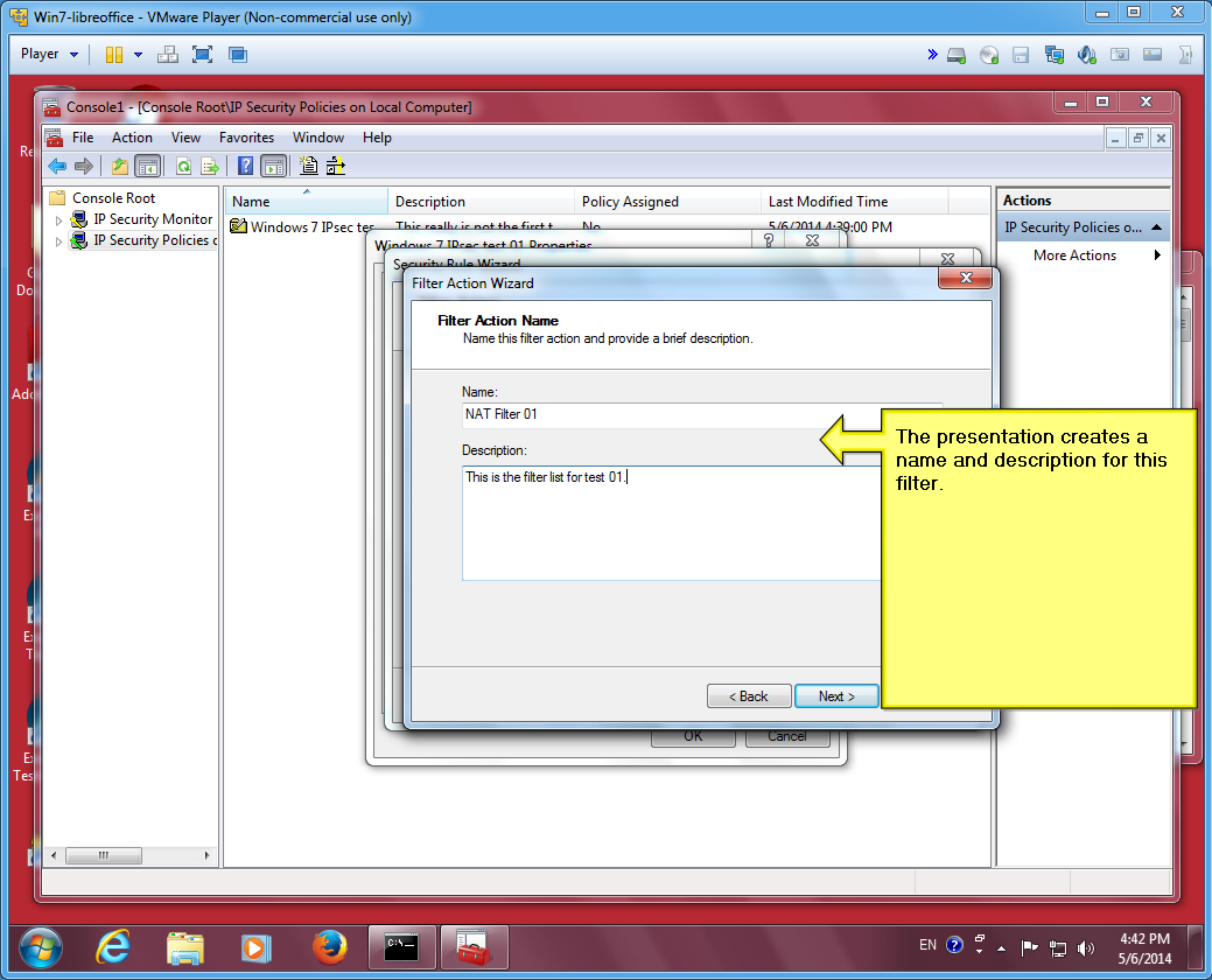
Welcome to the IP Security Filter Action Wizard

Use this wizard to specify properties for a new filter action.

A filter action sets the security requirements for a data transfer. These requirements are specified in a list of security methods contained in the filter action.

Data transfer is only possible when the computers involved use the same security methods. Multiple security methods increase the chance that two computers will use the same method.

To continue, click Next.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File Action View Favorites Window Help
Console Root
IP Security Monitor
IP Security Policies o
Name
Description
Policy Assigned
Last Modified Time
Windows 7 IPsec tes
This really is not the first t
No
5/6/2014 4:39:00 PM
Actions
IP Security Policies o...
More Actions
Windows 7 IPsec test 01 Properties
Security Rule Wizard
Filter Action Wizard
OK
Cancel
< Back
Next >
EN
4:42 PM
5/6/2014

Filter Action Name

Name this filter action and provide a brief description.

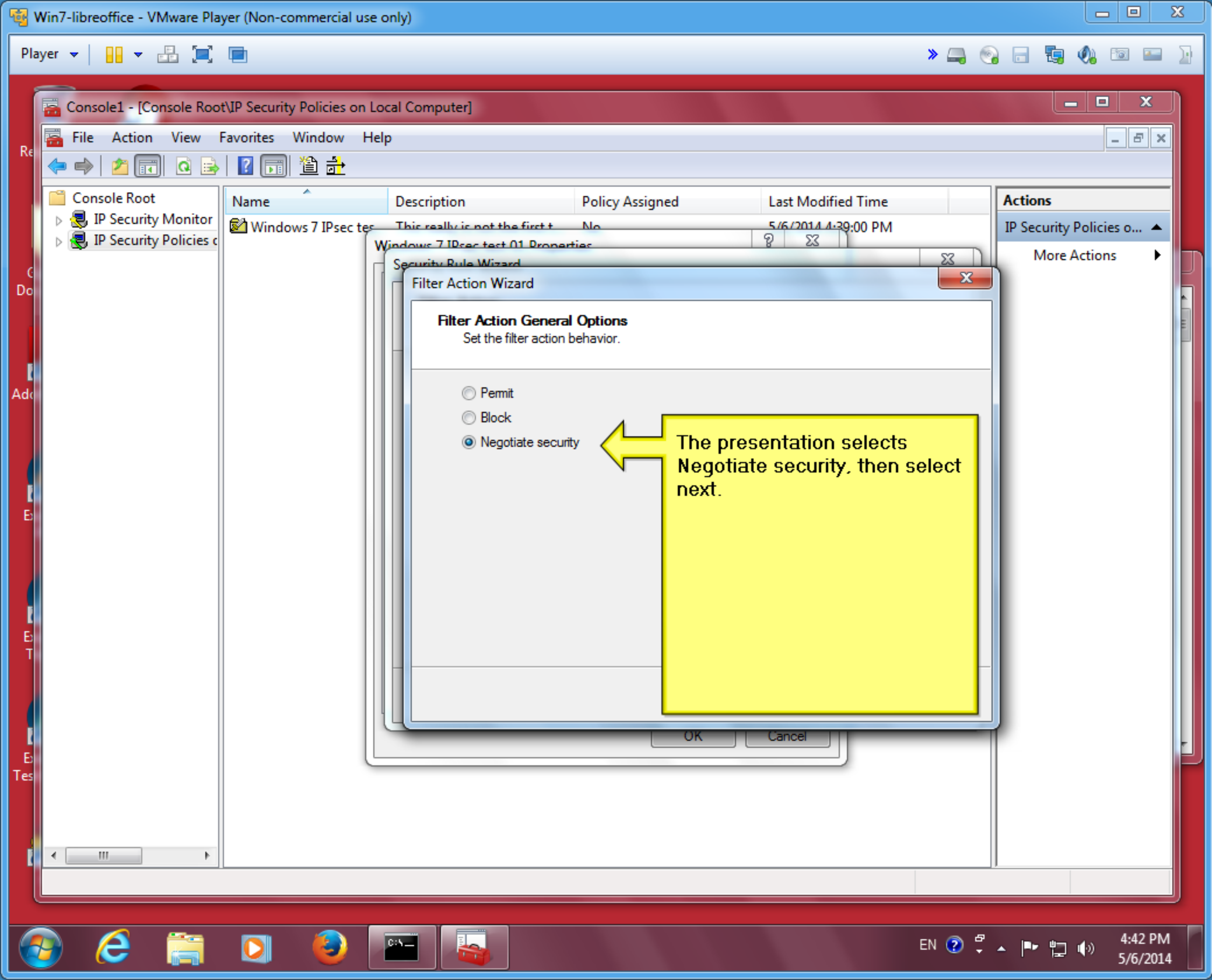
Name:

NAT Filter 01

Description:

This is the filter list for test 01.

The presentation creates a name and description for this filter.



Filter Action General Options

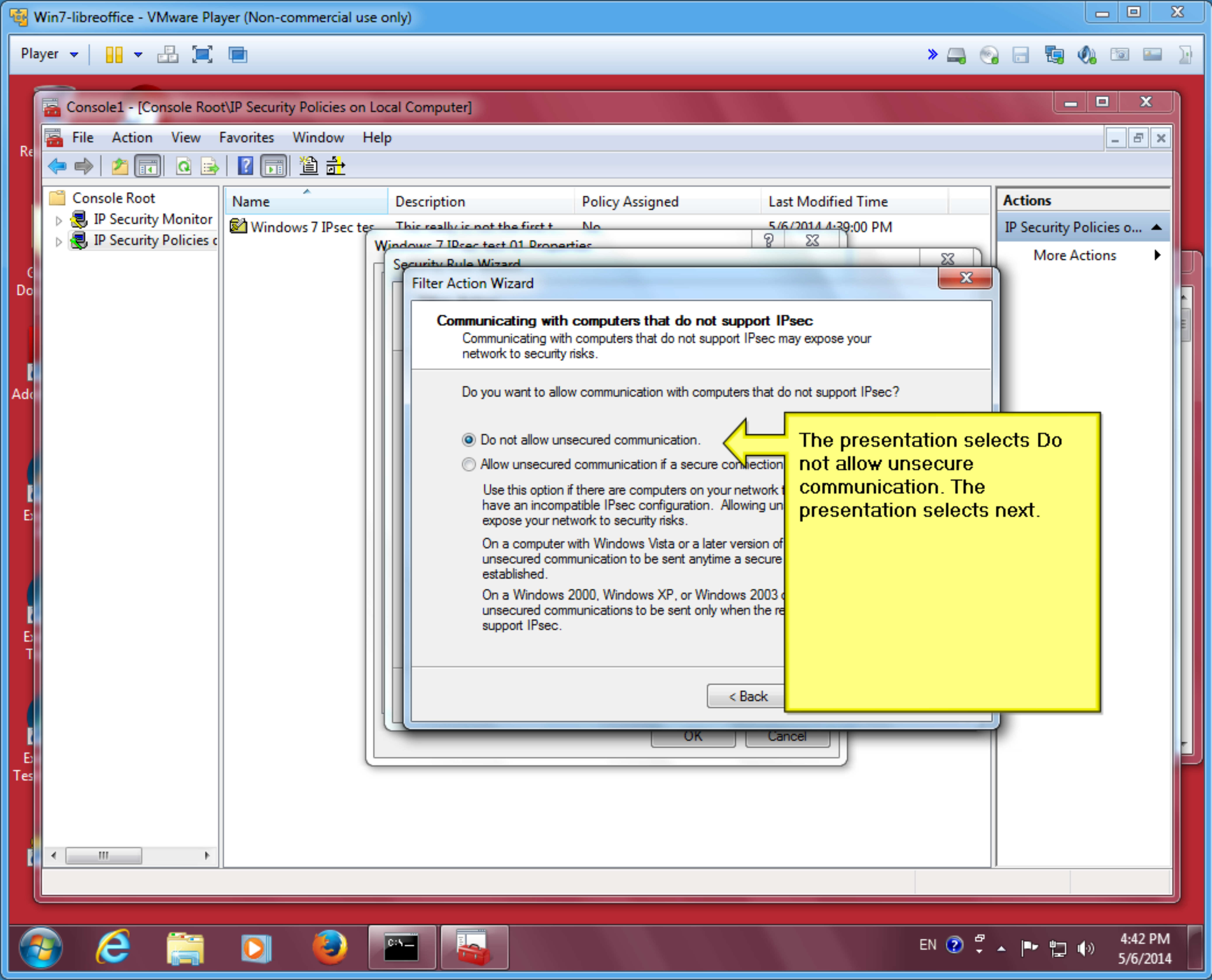
Set the filter action behavior.

○ Permit

○ Block

● Negotiate security

The presentation selects Negotiate security, then select next.



Communicating with computers that do not support IPsec

Communicating with computers that do not support IPsec may expose your network to security risks.

Do you want to allow communication with computers that do not support IPsec?

● Do not allow unsecured communication.

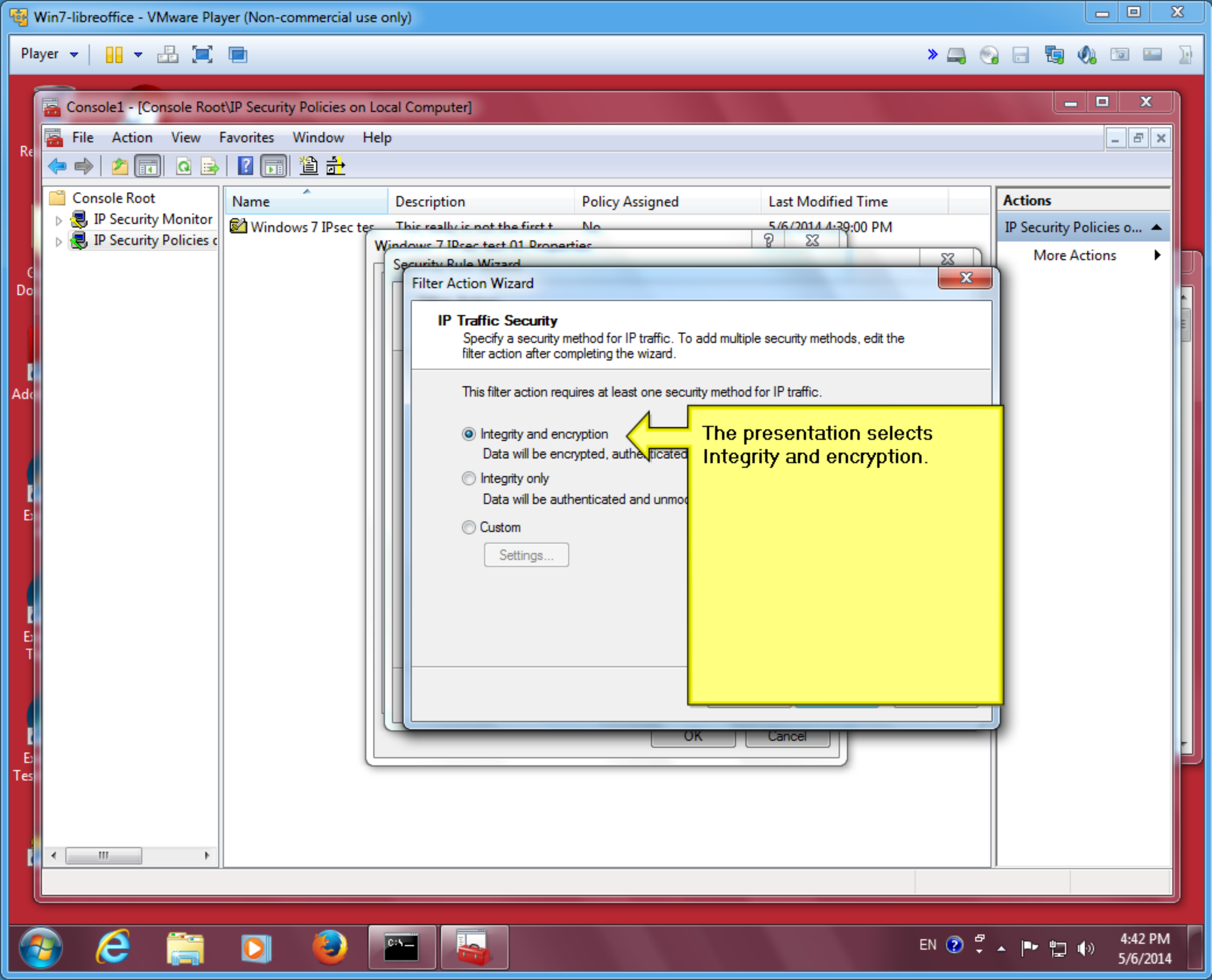
○ Allow unsecured communication if a secure connection

Use this option if there are computers on your network t have an incompatible IPsec configuration. Allowing un expose your network to security risks.

On a computer with Windows Vista or a later version of unsecured communication to be sent anytime a secure established.

On a Windows 2000, Windows XP, or Windows 2003 c unsecured communications to be sent only when the re support IPsec.

The presentation selects Do not allow unsecure communication. The presentation selects next.



IP Traffic Security

Specify a security method for IP traffic. To add multiple security methods, edit the filter action after completing the wizard.

This filter action requires at least one security method for IP traffic.

● Integrity and encryption

Data will be encrypted, authenticated

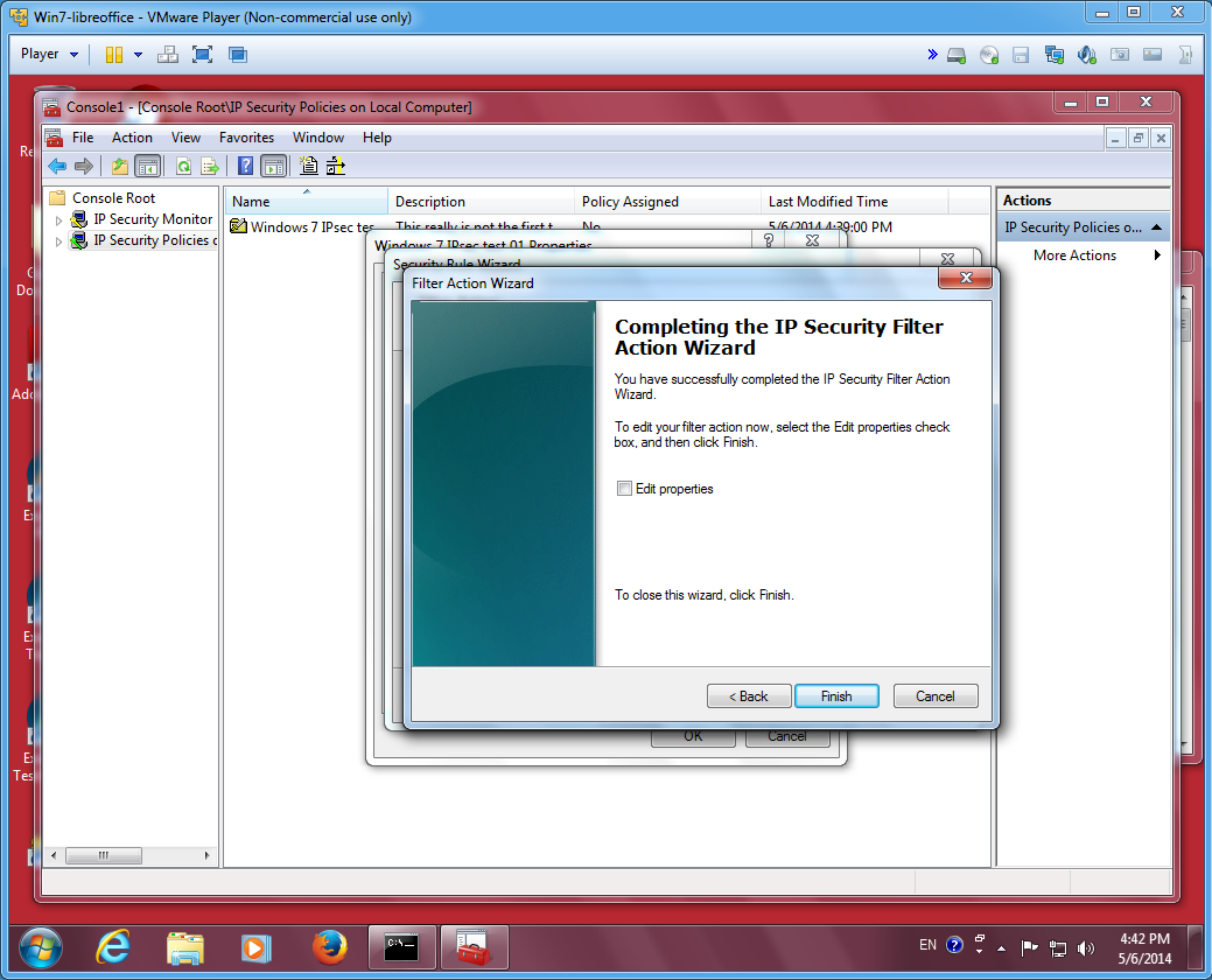
○ Integrity only

Data will be authenticated and unmod

○ Custom

Settings...

The presentation selects Integrity and encryption.


Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File Action View Favorites Window Help
Console Root
IP Security Monitor
IP Security Policies o
Actions
IP Security Policies o...
More Actions
Windows 7 IPsec test 01 Properties
Security Rule Wizard
Filter Action Wizard
OK
Cancel
EN
4:42 PM
5/6/2014

Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

Completing the IP Security Filter Action Wizard

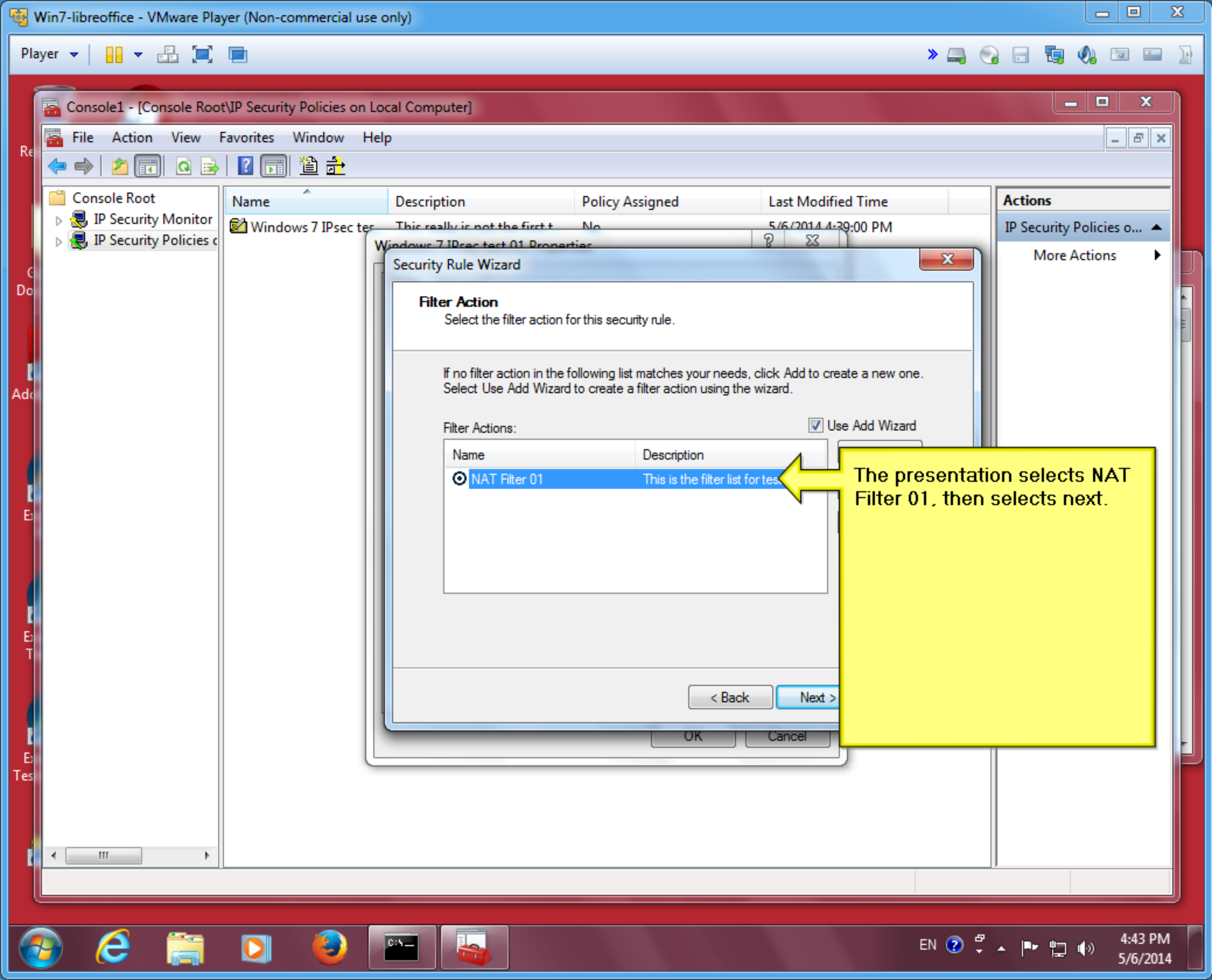
You have successfully completed the IP Security Filter Action Wizard.

To edit your filter action now, select the Edit properties check box, and then click Finish.

☐ Edit properties

To close this wizard, click Finish.

< Back | Finish | Cancel



Win7-libreoffice - VMware Player (Non-commercial use only)

Console1 - [Console Root\IP Security Policies on Local Computer]

Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

Windows 7 IPsec test 01 Properties

Security Rule Wizard

Filter Action

Select the filter action for this security rule.

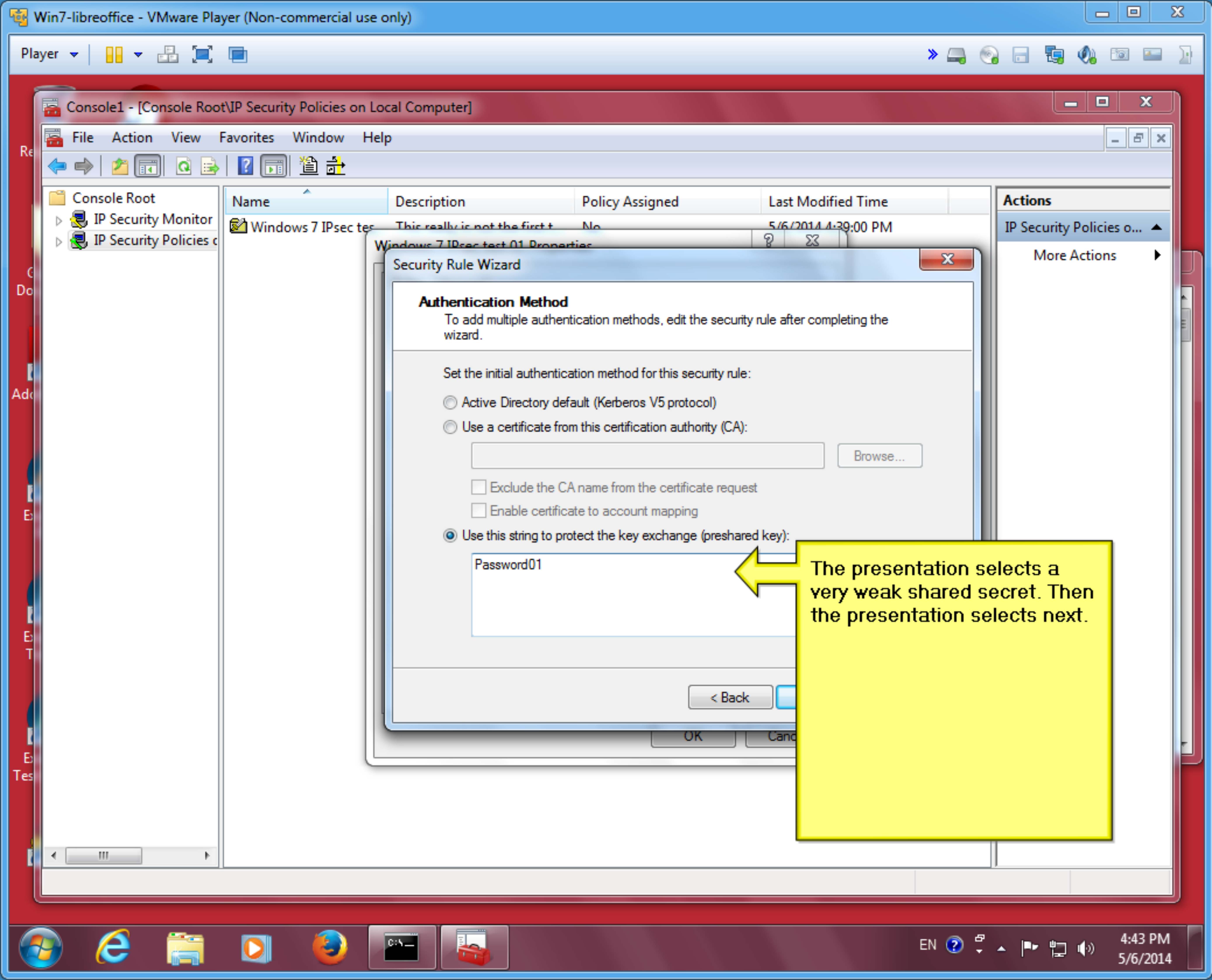
If no filter action in the following list matches your needs, click Add to create a new one. Select Use Add Wizard to create a filter action using the wizard.

Filter Actions:

☑ Use Add Wizard

Name	Description
● NAT Filter 01	This is the filter list for tes

The presentation selects NAT Filter 01, then selects next.



Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

Security Rule Wizard

Authentication Method

To add multiple authentication methods, edit the security rule after completing the wizard.

Set the initial authentication method for this security rule:

○ Active Directory default (Kerberos V5 protocol)

○ Use a certificate from this certification authority (CA):

Browse...

□ Exclude the CA name from the certificate request

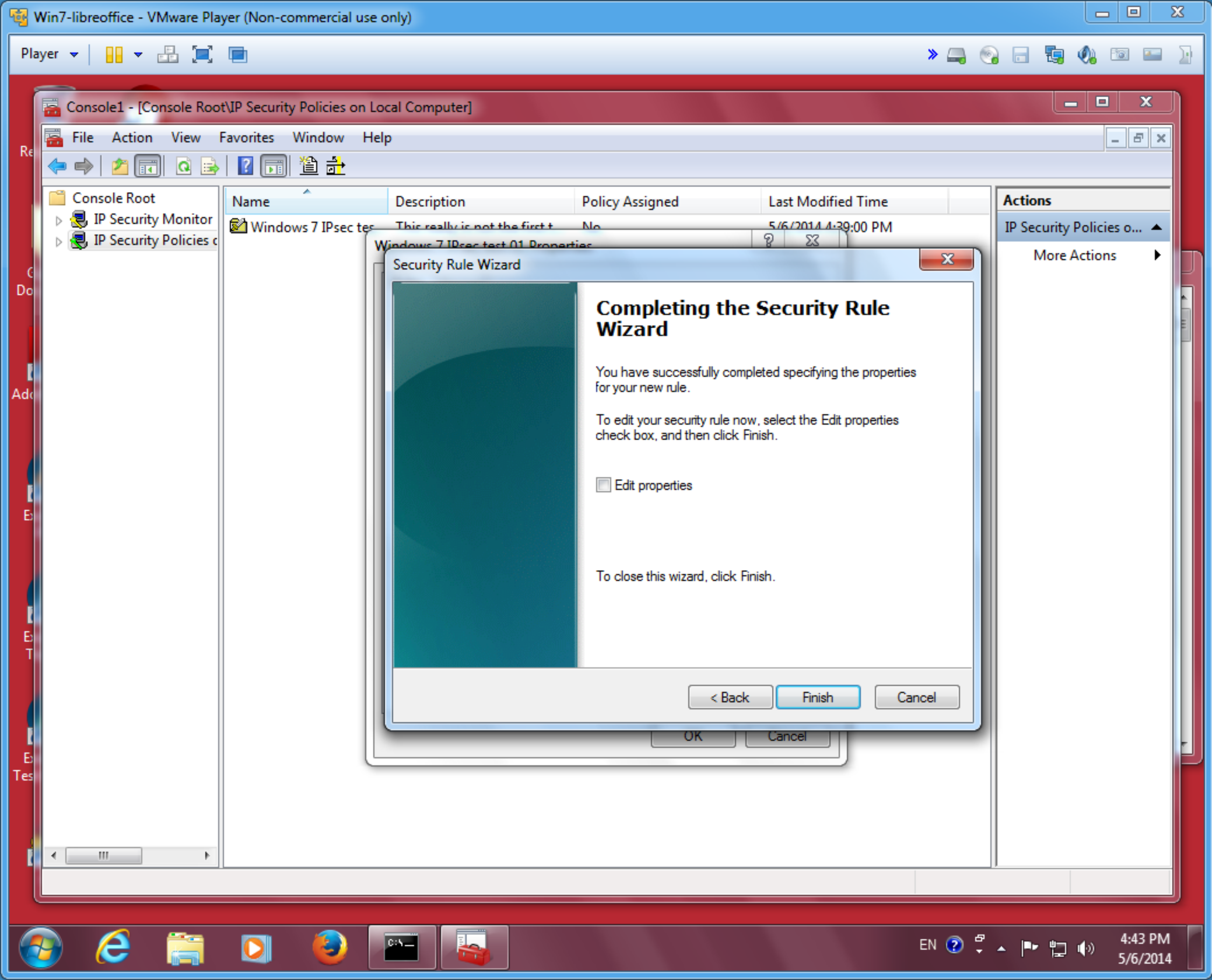
□ Enable certificate to account mapping

● Use this string to protect the key exchange (preshared key):

Password01

< Back

The presentation selects a very weak shared secret. Then the presentation selects next.



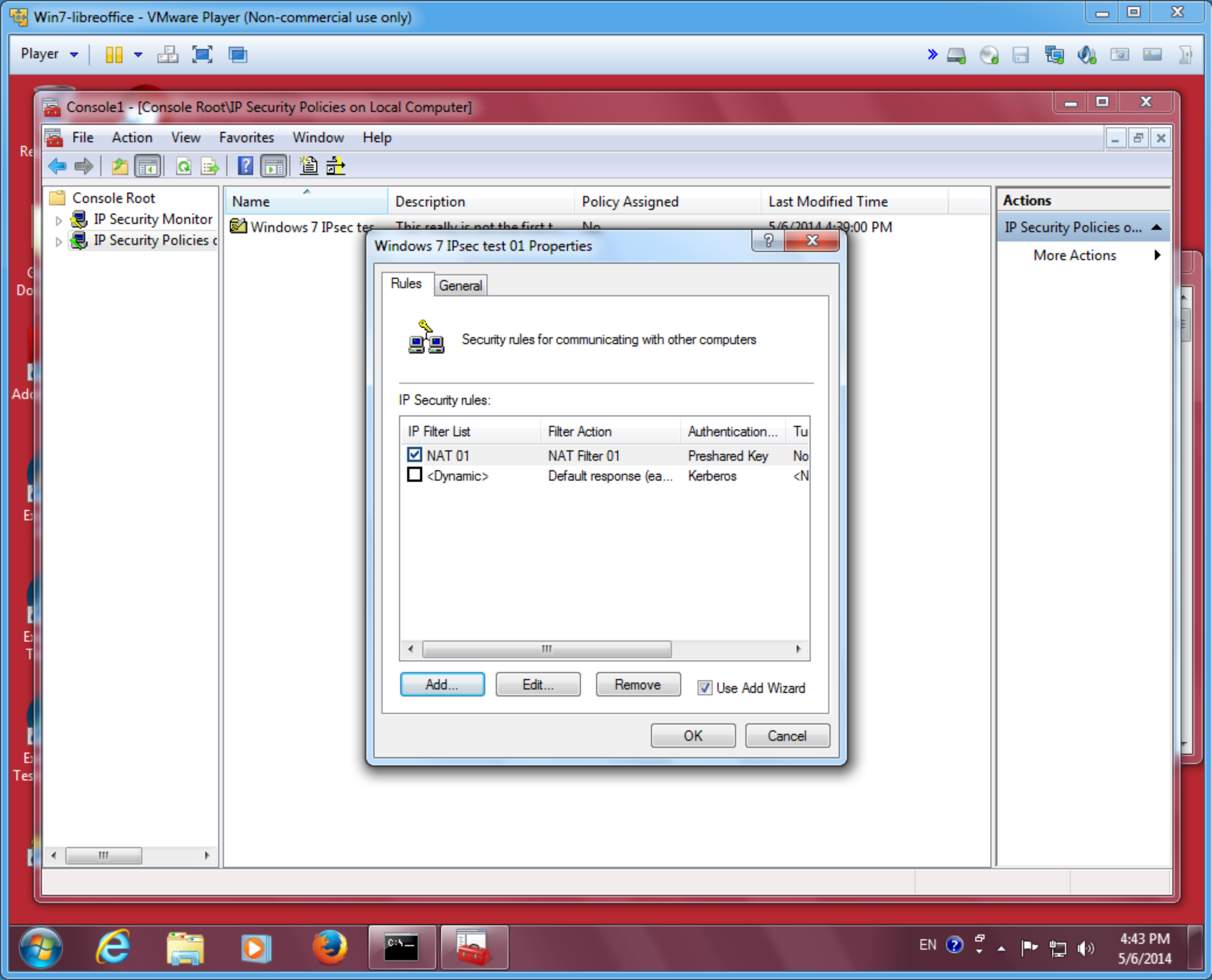
Completing the Security Rule Wizard

You have successfully completed specifying the properties for your new rule.

To edit your security rule now, select the Edit properties check box, and then click Finish.

□ Edit properties

To close this wizard, click Finish.



Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes	This really is not the first t	No	5/6/2014 4:39:00 PM

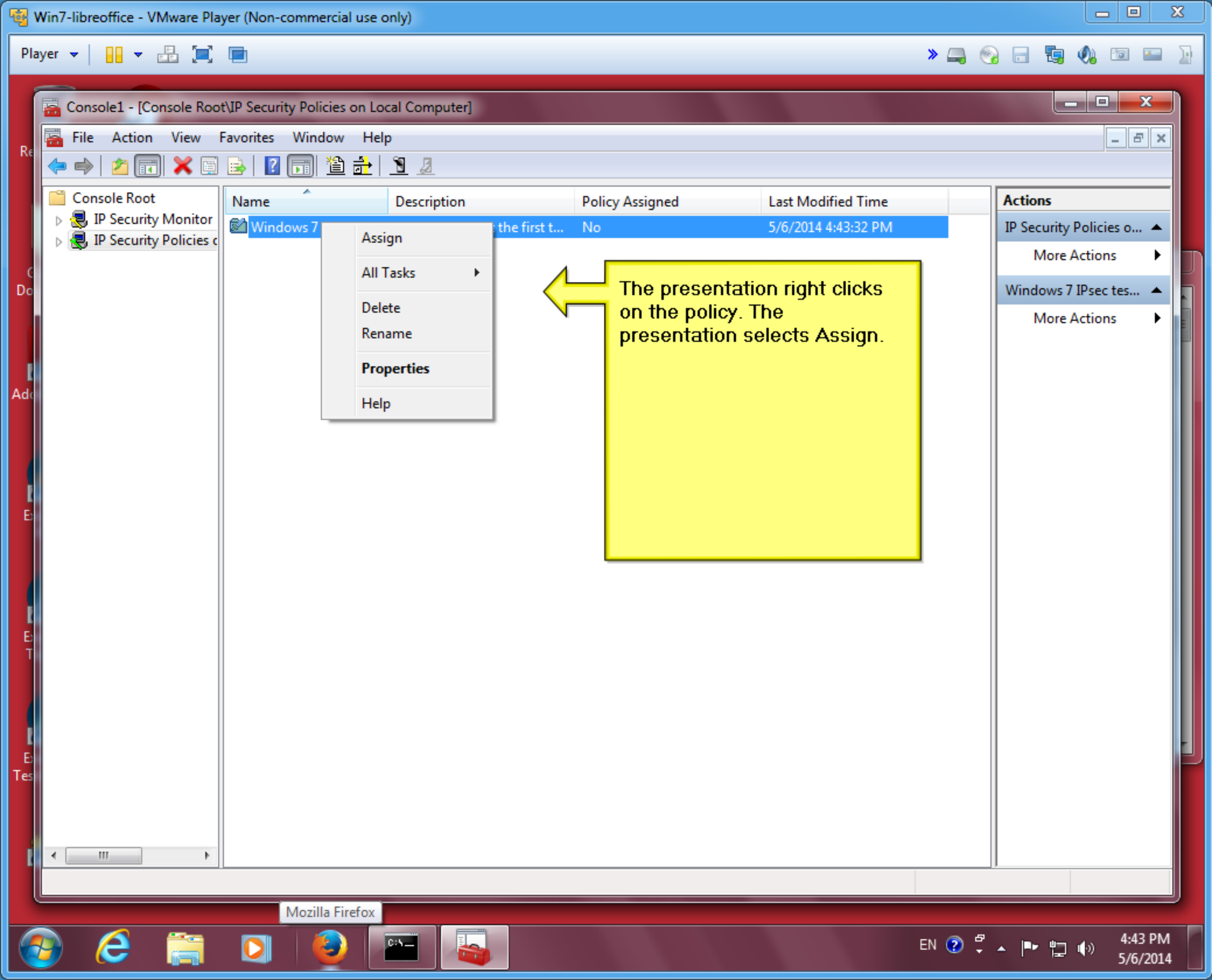
Windows 7 IPsec test 01 Properties

Security rules for communicating with other computers

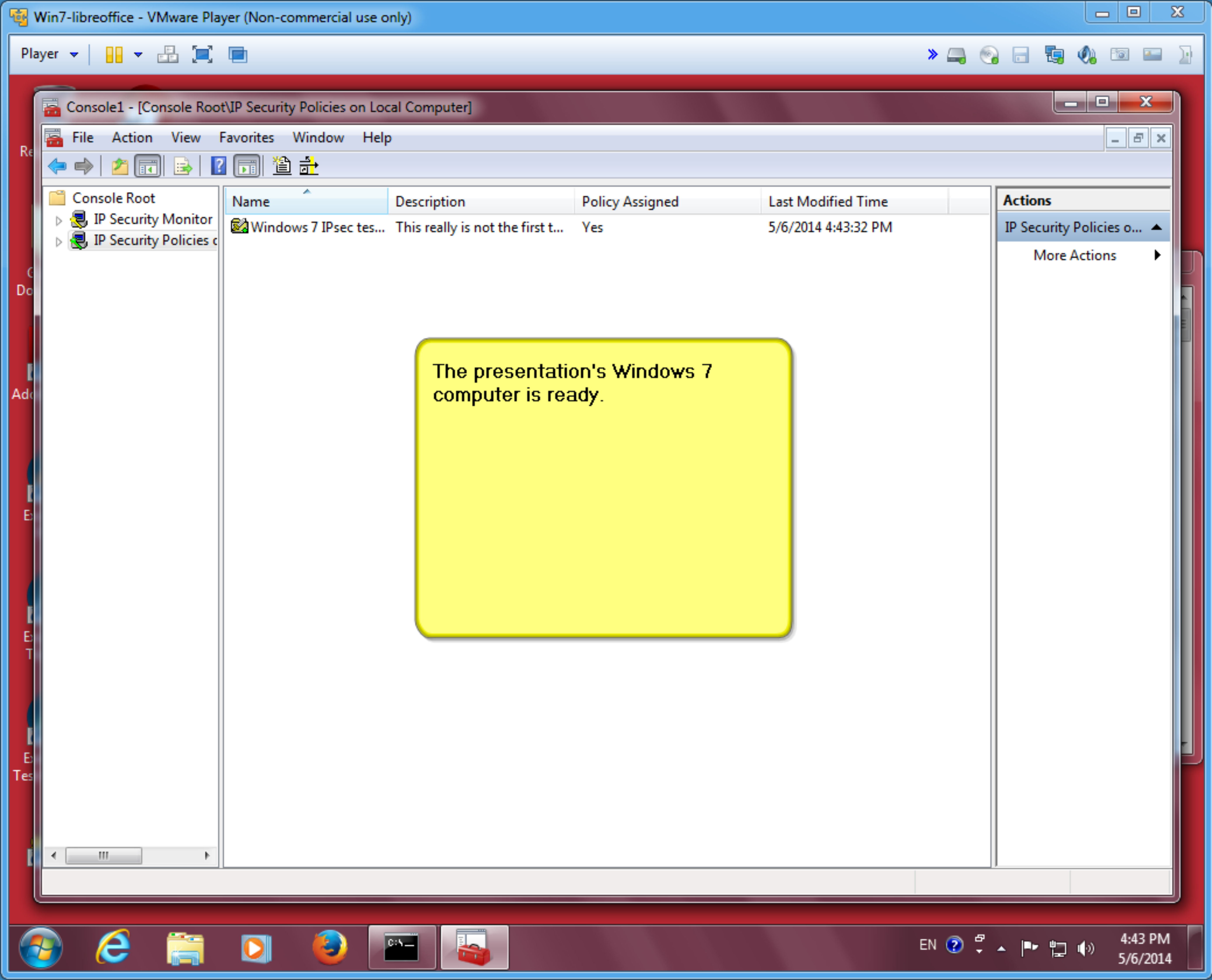
IP Security rules:

IP Filter List	Filter Action	Authentication...	Tu
☑ NAT 01	NAT Filter 01	Preshared Key	No
□ <Dynamic>	Default response (ea...	Kerberos	<N

☑ Use Add Wizard



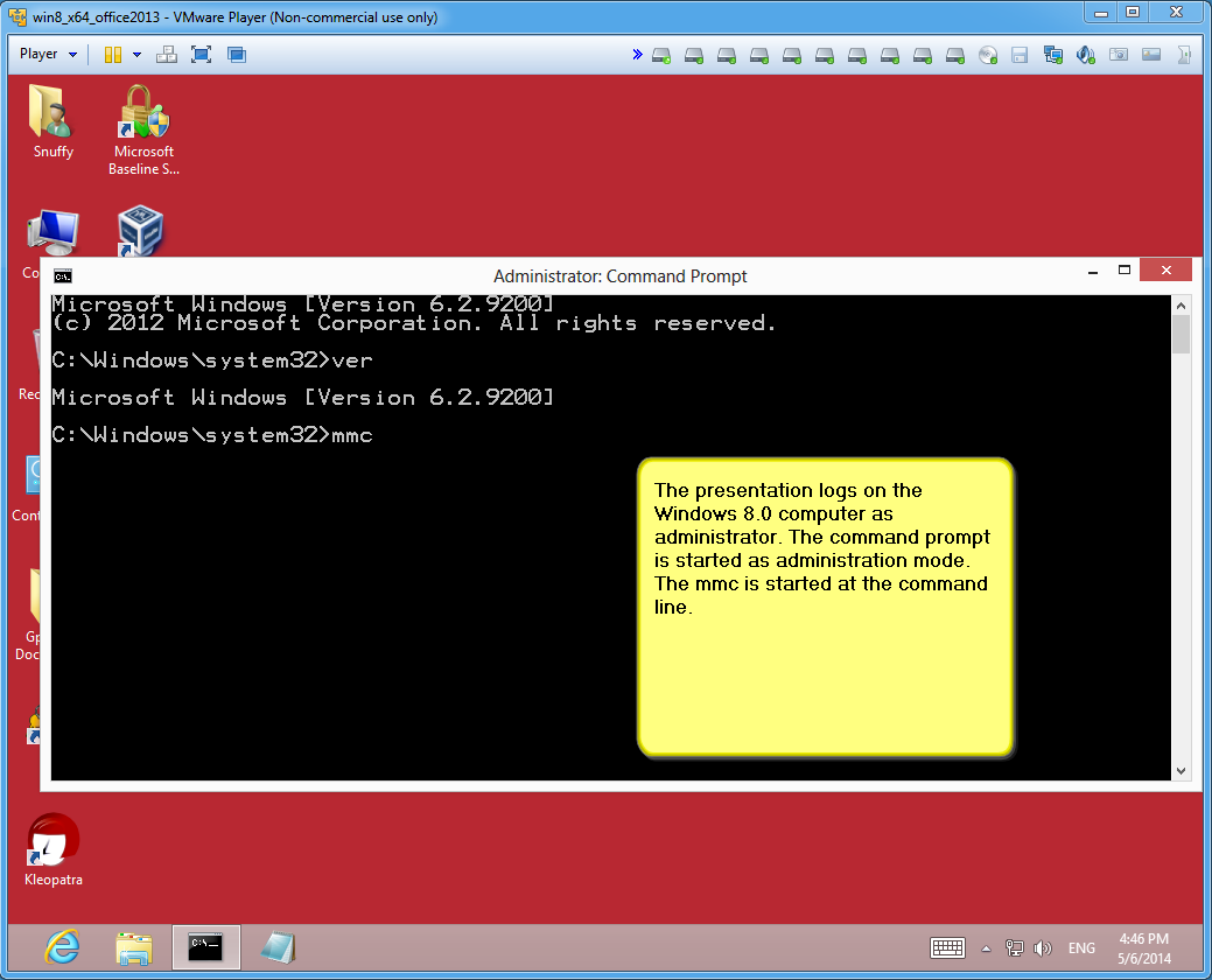
The presentation right clicks on the policy. The presentation selects Assign.



Win7-libreoffice - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
File
Action
View
Favorites
Window
Help
Console Root
IP Security Monitor
IP Security Policies c
Actions
IP Security Policies o...
More Actions
EN
4:43 PM
5/6/2014

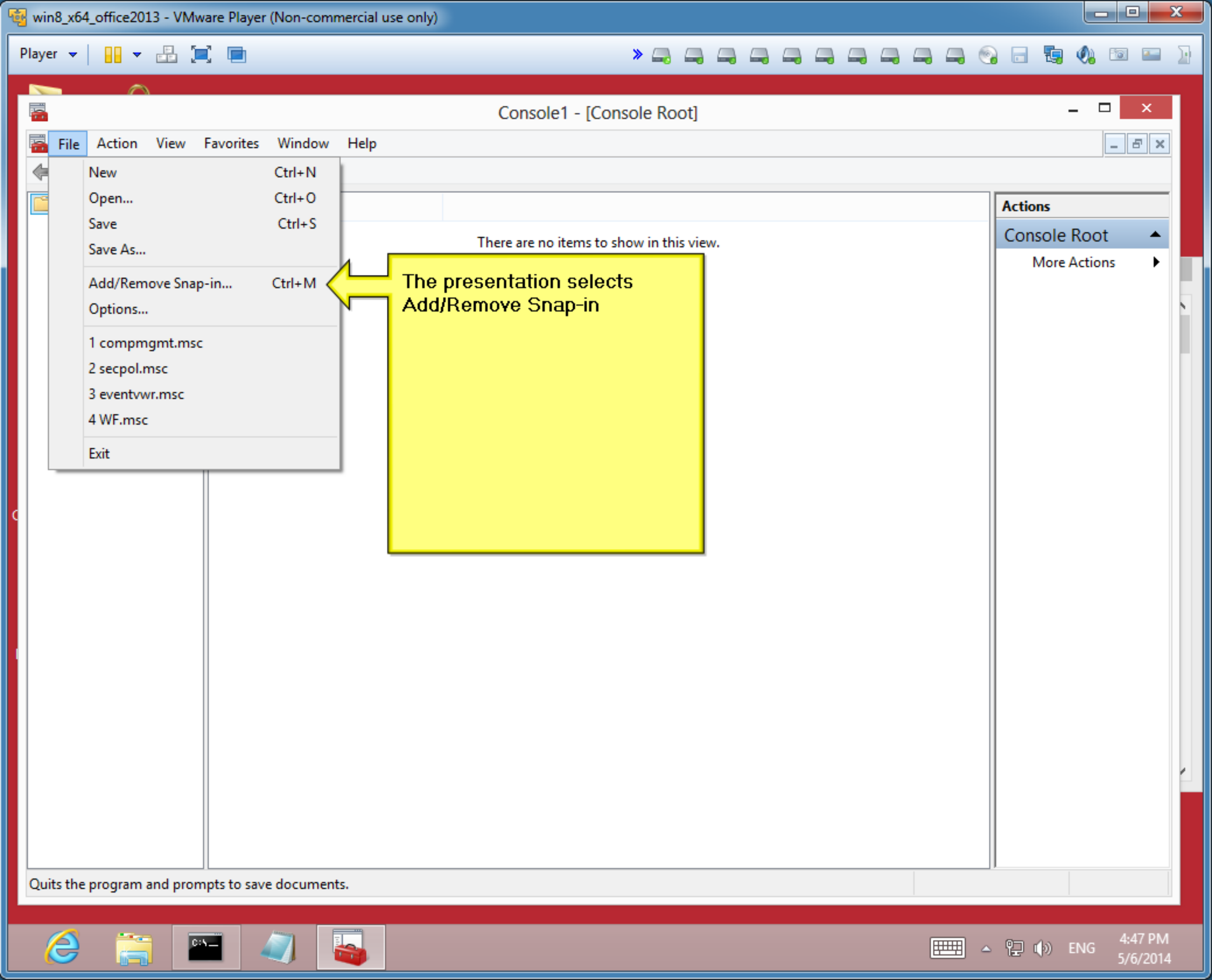
Name	Description	Policy Assigned	Last Modified Time
Windows 7 IPsec tes...	This really is not the first t...	Yes	5/6/2014 4:43:32 PM

The presentation's Windows 7 computer is ready.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Administrator: Command Prompt
ENG
4:46 PM
5/6/2014

```
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.

C:\Windows\system32>ver

Microsoft Windows [Version 6.2.9200]

C:\Windows\system32>mmc
```

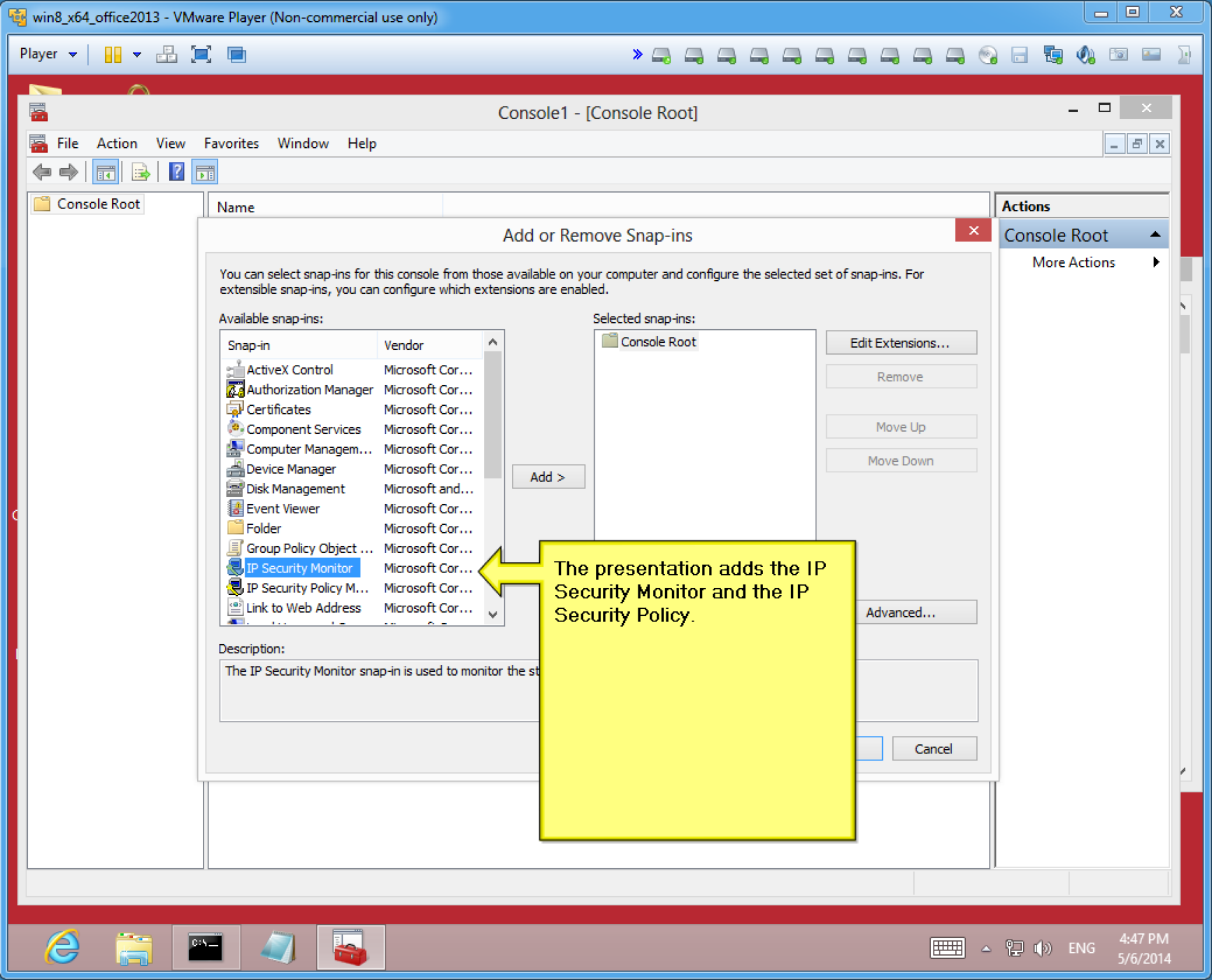
The presentation logs on the Windows 8.0 computer as administrator. The command prompt is started as administration mode. The mmc is started at the command line.



There are no items to show in this view.

The presentation selects Add/Remove Snap-in

Quits the program and prompts to save documents.

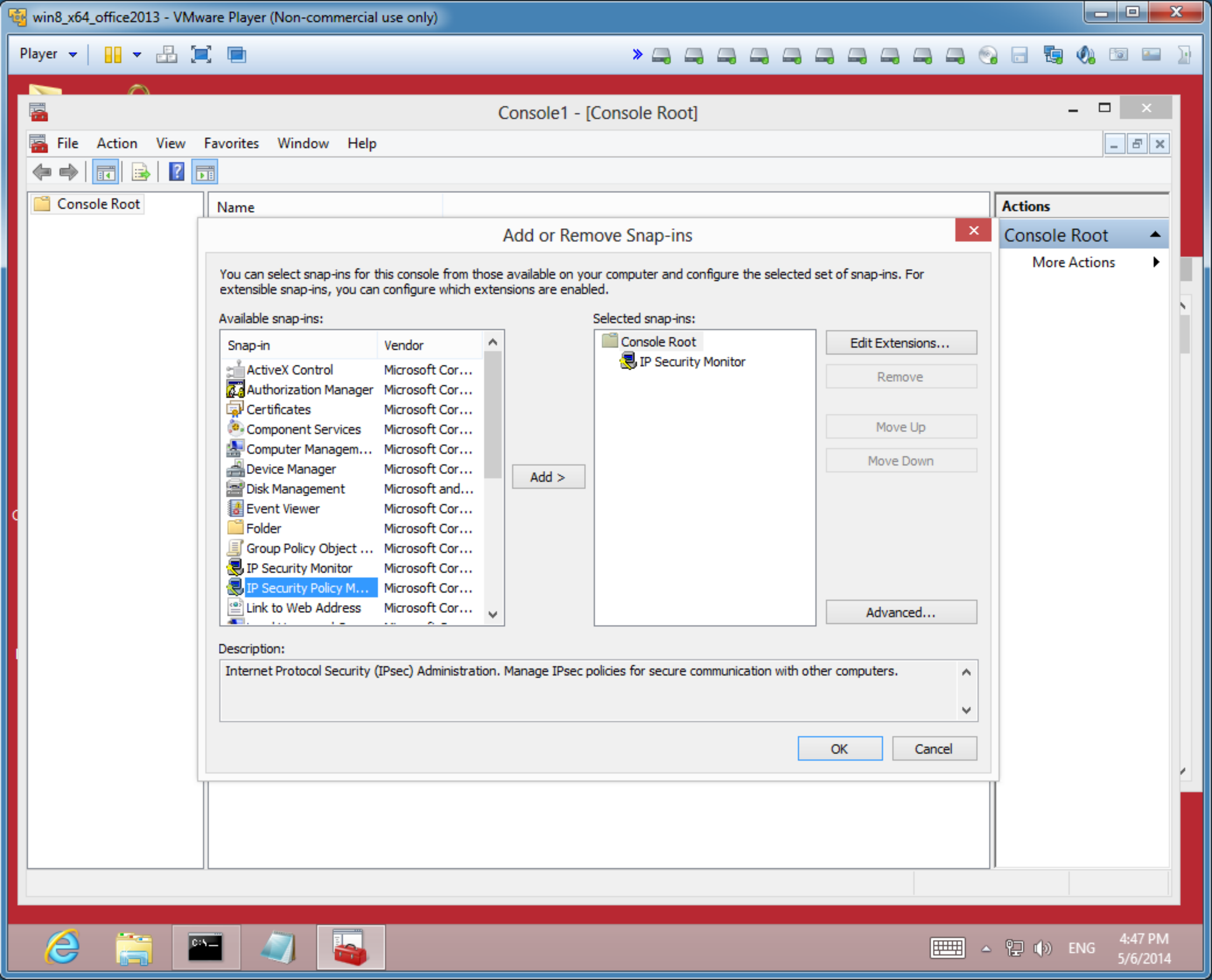


You can select snap-ins for this console from those available on your computer and configure the selected set of snap-ins. For extensible snap-ins, you can configure which extensions are enabled.

Snap-in	Vendor
ActiveX Control	Microsoft Cor...
Authorization Manager	Microsoft Cor...
Certificates	Microsoft Cor...
Component Services	Microsoft Cor...
Computer Managem...	Microsoft Cor...
Device Manager	Microsoft Cor...
Disk Management	Microsoft and...
Event Viewer	Microsoft Cor...
Folder	Microsoft Cor...
Group Policy Object ...	Microsoft Cor...
IP Security Monitor	Microsoft Cor...
IP Security Policy M...	Microsoft Cor...
Link to Web Address	Microsoft Cor...

The IP Security Monitor snap-in is used to monitor the st

The presentation adds the IP Security Monitor and the IP Security Policy.



You can select snap-ins for this console from those available on your computer and configure the selected set of snap-ins. For extensible snap-ins, you can configure which extensions are enabled.

Available snap-ins:

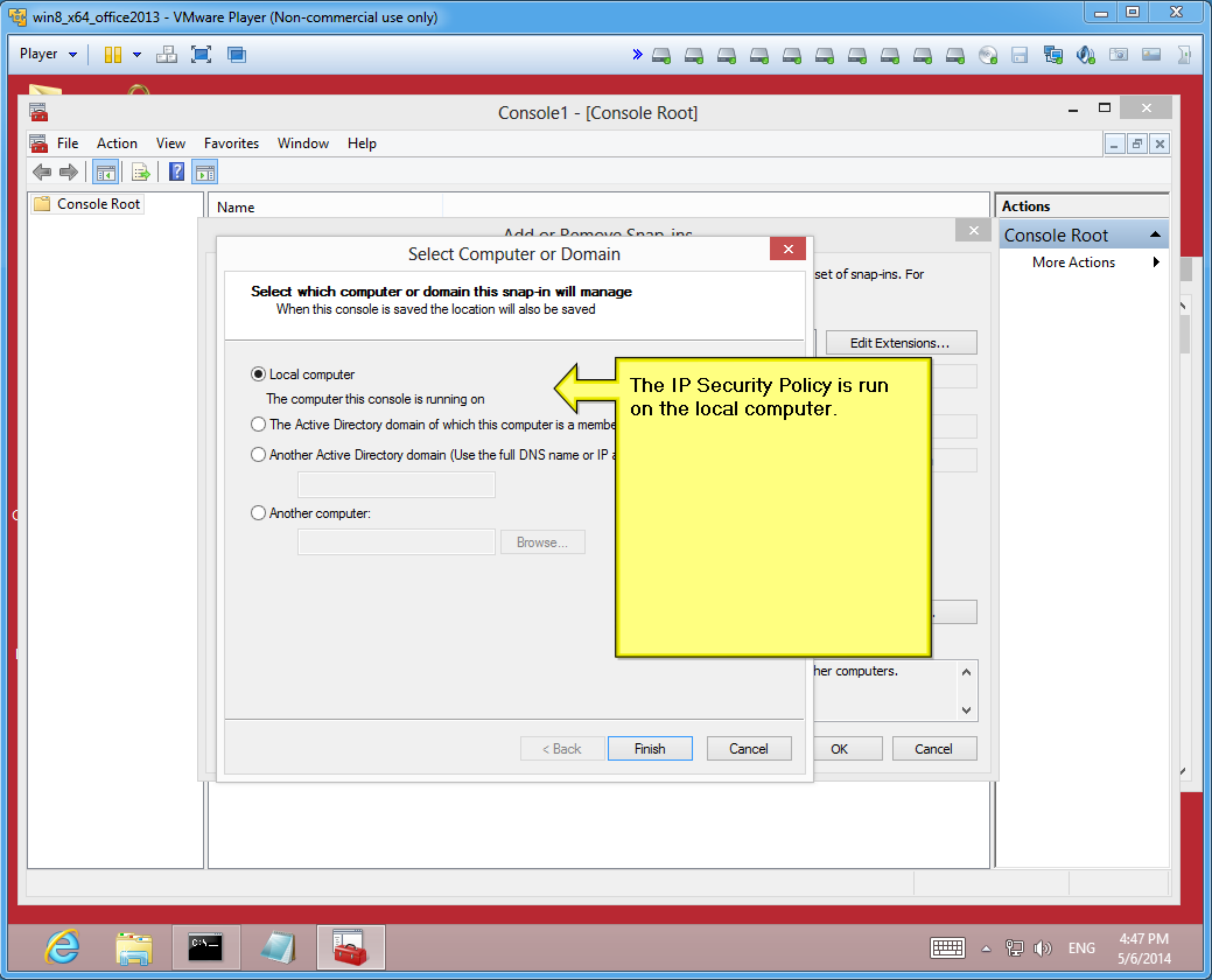
Snap-in	Vendor
ActiveX Control	Microsoft Cor...
Authorization Manager	Microsoft Cor...
Certificates	Microsoft Cor...
Component Services	Microsoft Cor...
Computer Managem...	Microsoft Cor...
Device Manager	Microsoft Cor...
Disk Management	Microsoft and...
Event Viewer	Microsoft Cor...
Folder	Microsoft Cor...
Group Policy Object ...	Microsoft Cor...
IP Security Monitor	Microsoft Cor...
IP Security Policy M...	Microsoft Cor...
Link to Web Address	Microsoft Cor...

Selected snap-ins:

Console Root
IP Security Monitor

Description:

Internet Protocol Security (IPsec) Administration. Manage IPsec policies for secure communication with other computers.



Select Computer or Domain

Select which computer or domain this snap-in will manage

When this console is saved the location will also be saved

● Local computer

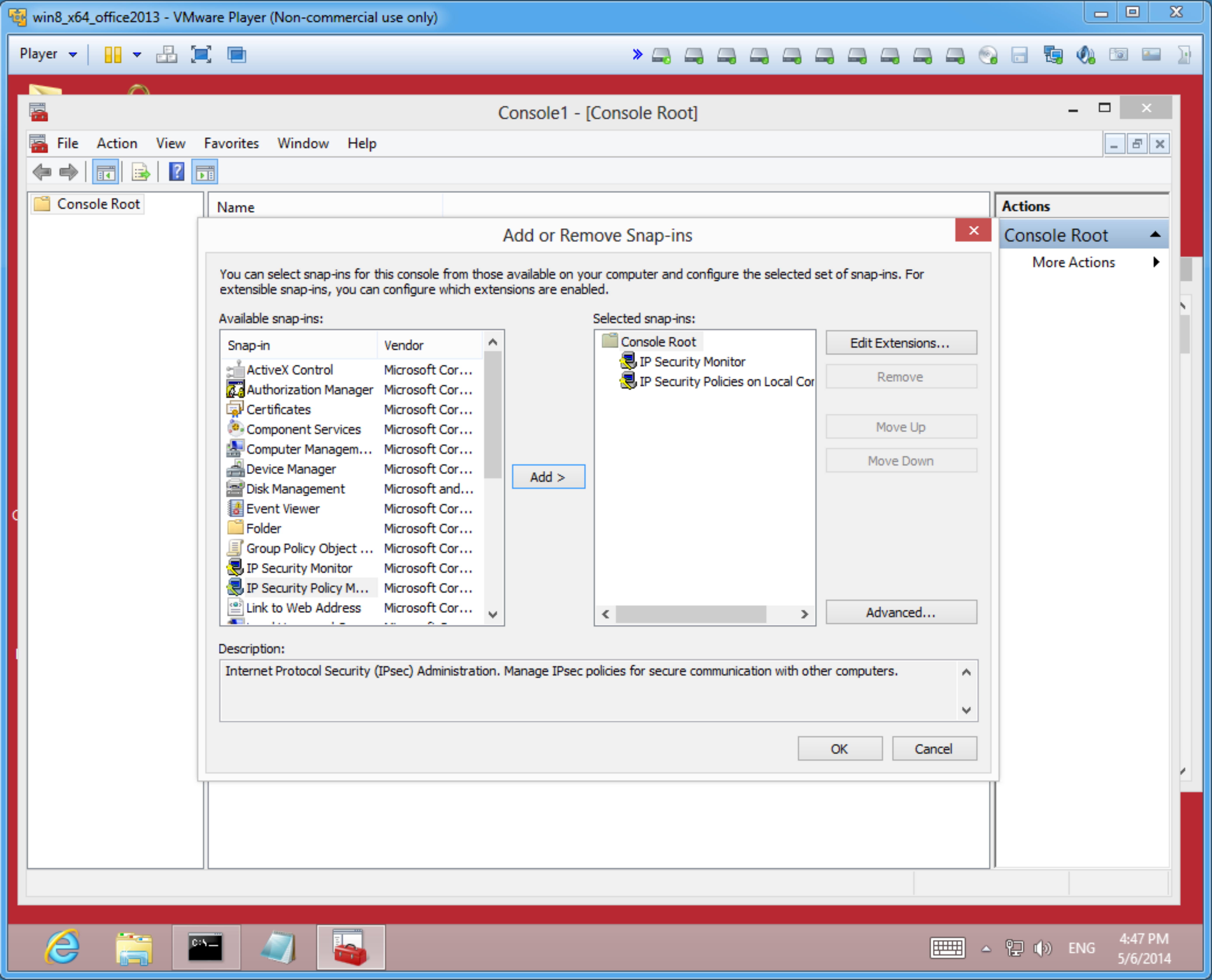
The computer this console is running on

○ The Active Directory domain of which this computer is a membe

○ Another Active Directory domain (Use the full DNS name or IP a

○ Another computer:

The IP Security Policy is run on the local computer.



You can select snap-ins for this console from those available on your computer and configure the selected set of snap-ins. For extensible snap-ins, you can configure which extensions are enabled.

Available snap-ins:

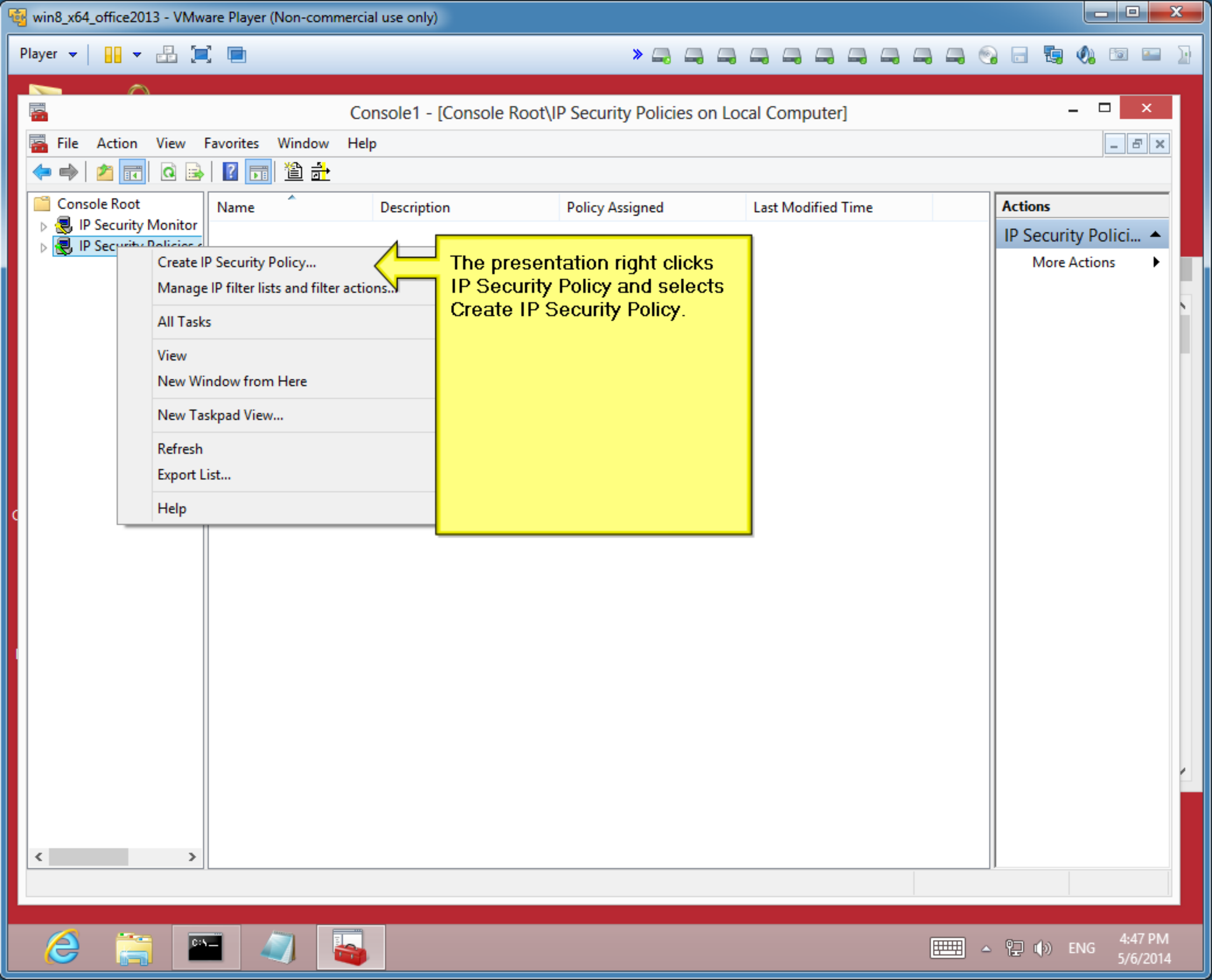
Snap-in	Vendor
ActiveX Control	Microsoft Cor...
Authorization Manager	Microsoft Cor...
Certificates	Microsoft Cor...
Component Services	Microsoft Cor...
Computer Managem...	Microsoft Cor...
Device Manager	Microsoft Cor...
Disk Management	Microsoft and...
Event Viewer	Microsoft Cor...
Folder	Microsoft Cor...
Group Policy Object ...	Microsoft Cor...
IP Security Monitor	Microsoft Cor...
IP Security Policy M...	Microsoft Cor...
Link to Web Address	Microsoft Cor...

Selected snap-ins:

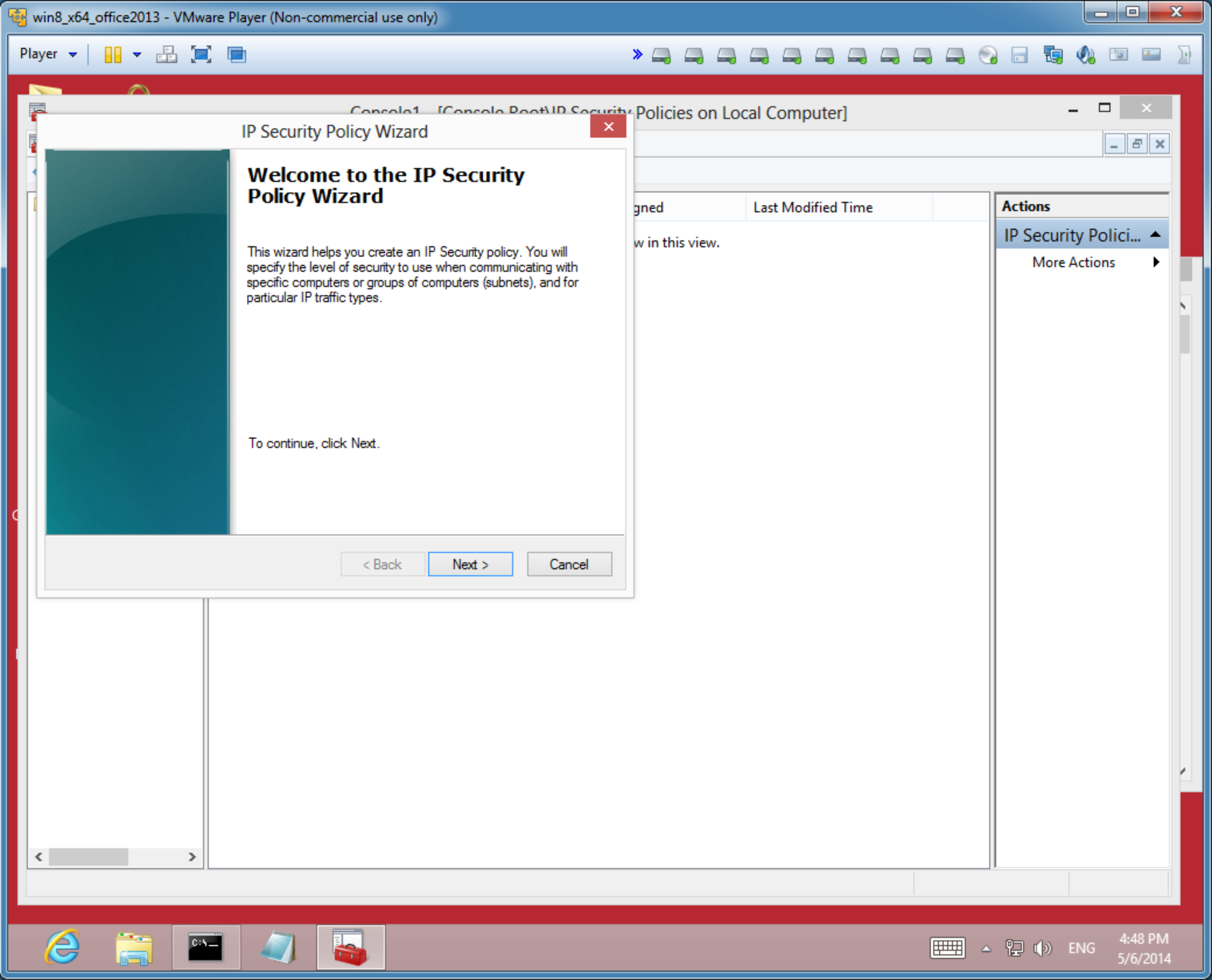
- Console Root
  - IP Security Monitor
  - IP Security Policies on Local Cor

Description:

Internet Protocol Security (IPsec) Administration. Manage IPsec policies for secure communication with other computers.



The presentation right clicks IP Security Policy and selects Create IP Security Policy.

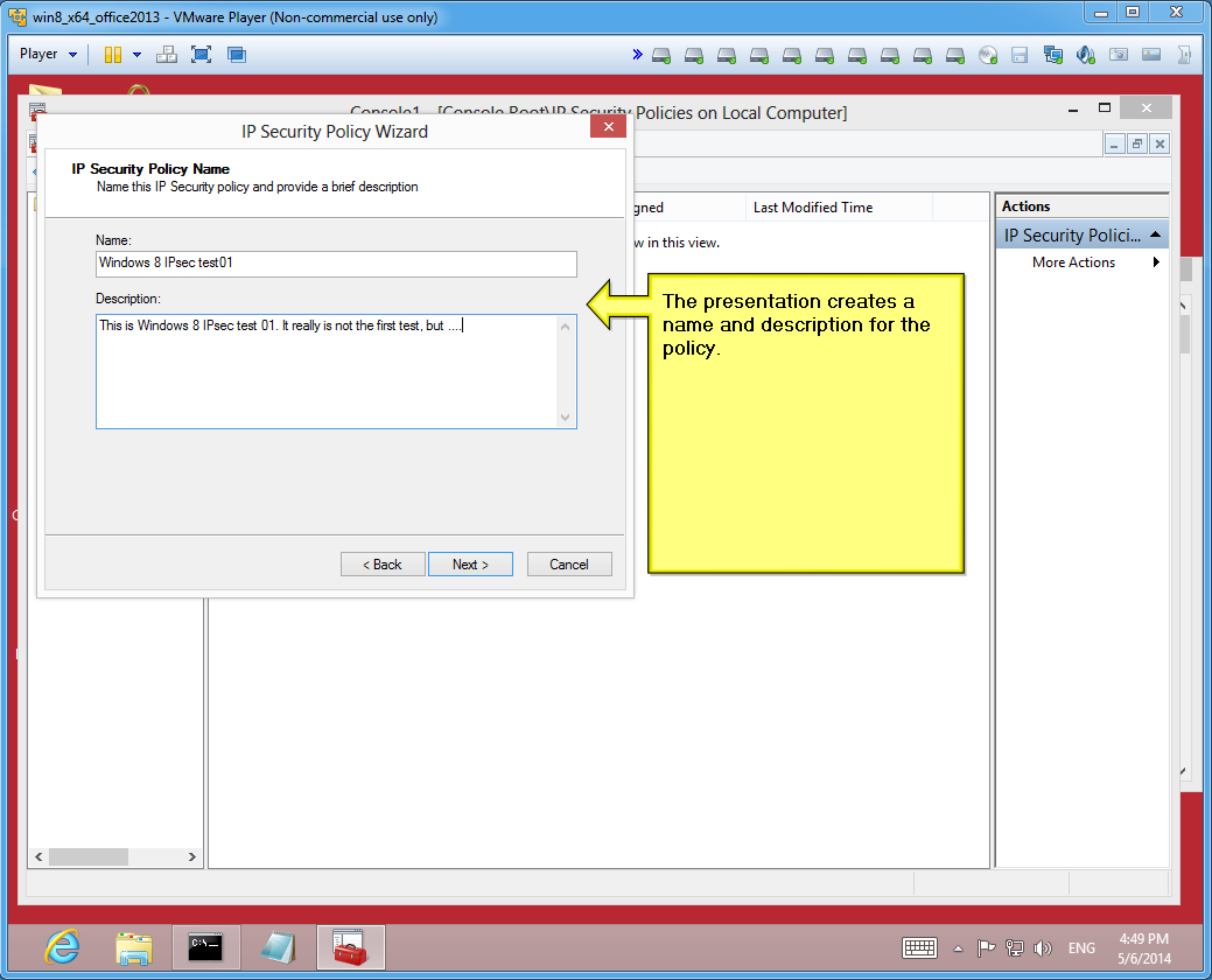


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
IP Security Policy Wizard
gned
Last Modified Time
w in this view.
Actions
IP Security Polici...
More Actions
< Back
Next >
Cancel
ENG
4:48 PM
5/6/2014

Welcome to the IP Security Policy Wizard

This wizard helps you create an IP Security policy. You will specify the level of security to use when communicating with specific computers or groups of computers (subnets), and for particular IP traffic types.

To continue, click Next.



win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
gned
Last Modified Time
w in this view.
Actions
IP Security Polici...
More Actions
ENG
4:49 PM
5/6/2014

IP Security Policy Wizard

IP Security Policy Name

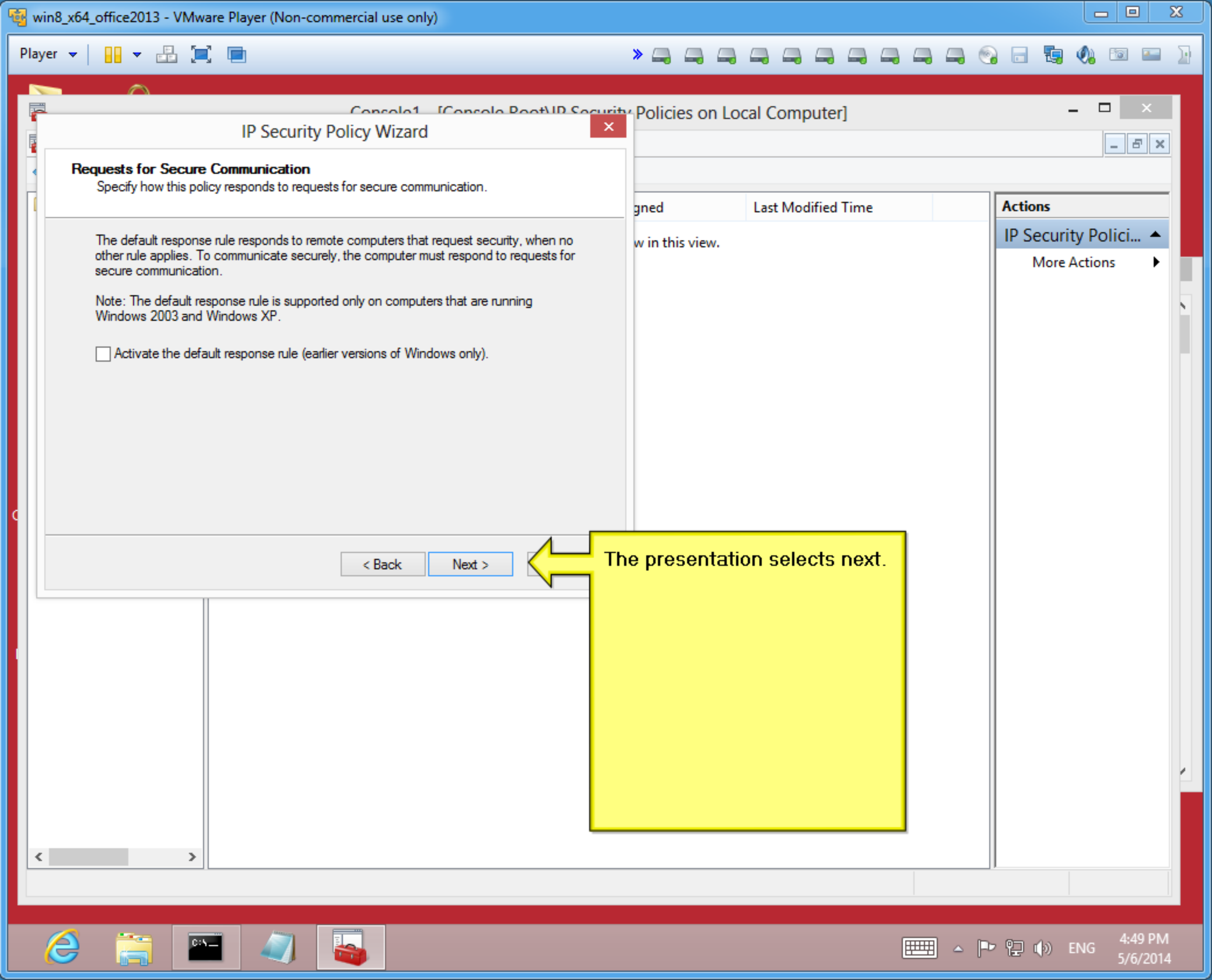
Name this IP Security policy and provide a brief description

Name: Windows 8 IPsec test01

Description: This is Windows 8 IPsec test 01. It really is not the first test, but ....

< Back | Next > | Cancel

The presentation creates a name and description for the policy.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
IP Security Policy Wizard

Requests for Secure Communication

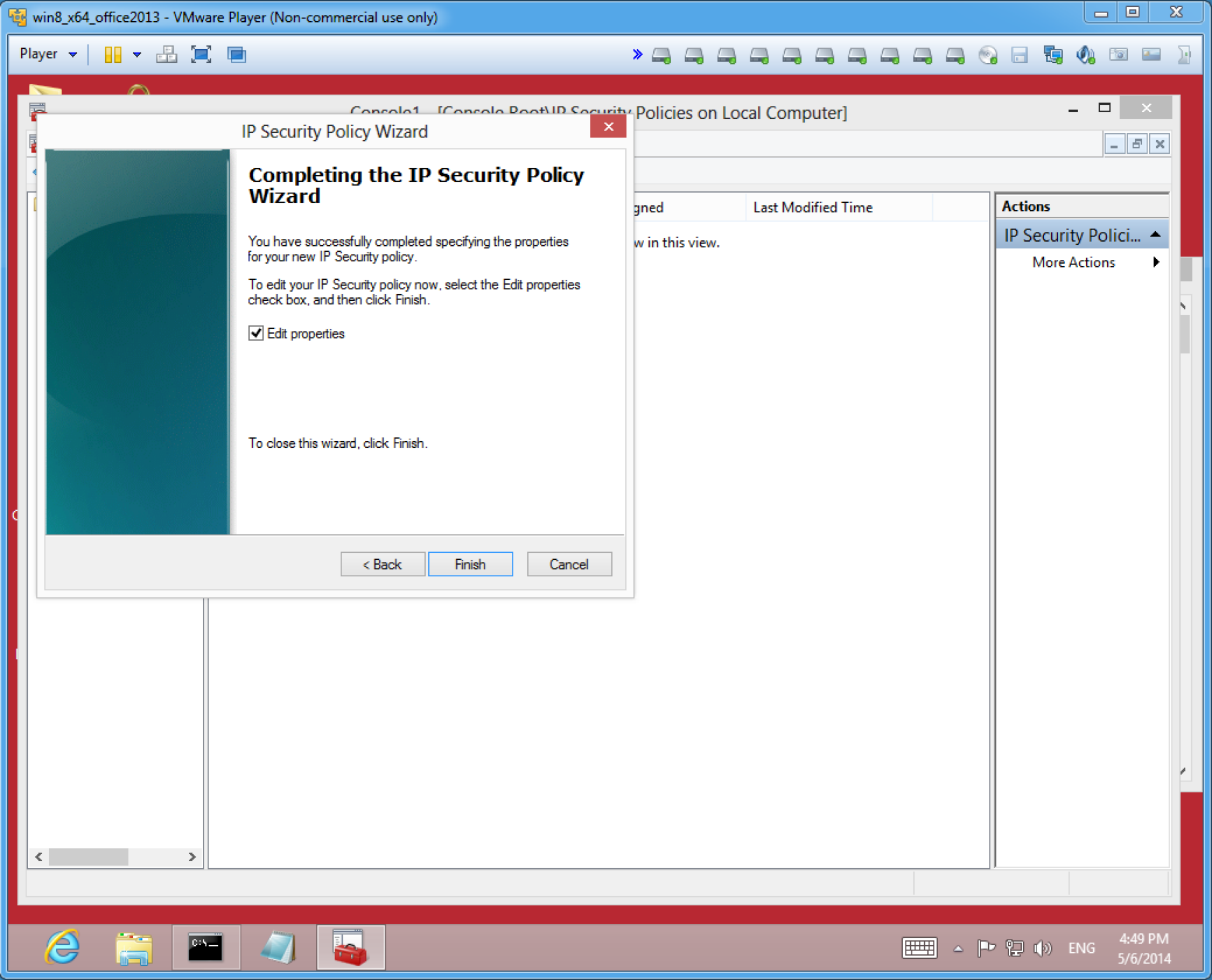
Specify how this policy responds to requests for secure communication.

The default response rule responds to remote computers that request security, when no other rule applies. To communicate securely, the computer must respond to requests for secure communication.

Note: The default response rule is supported only on computers that are running Windows 2003 and Windows XP.

□ Activate the default response rule (earlier versions of Windows only).

The presentation selects next.



win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Console1 - [Console Root\IP Security Policies on Local Computer]
gned
Last Modified Time
w in this view.
Actions
IP Security Polici...
More Actions
4:49 PM
5/6/2014
ENG

IP Security Policy Wizard

Completing the IP Security Policy Wizard

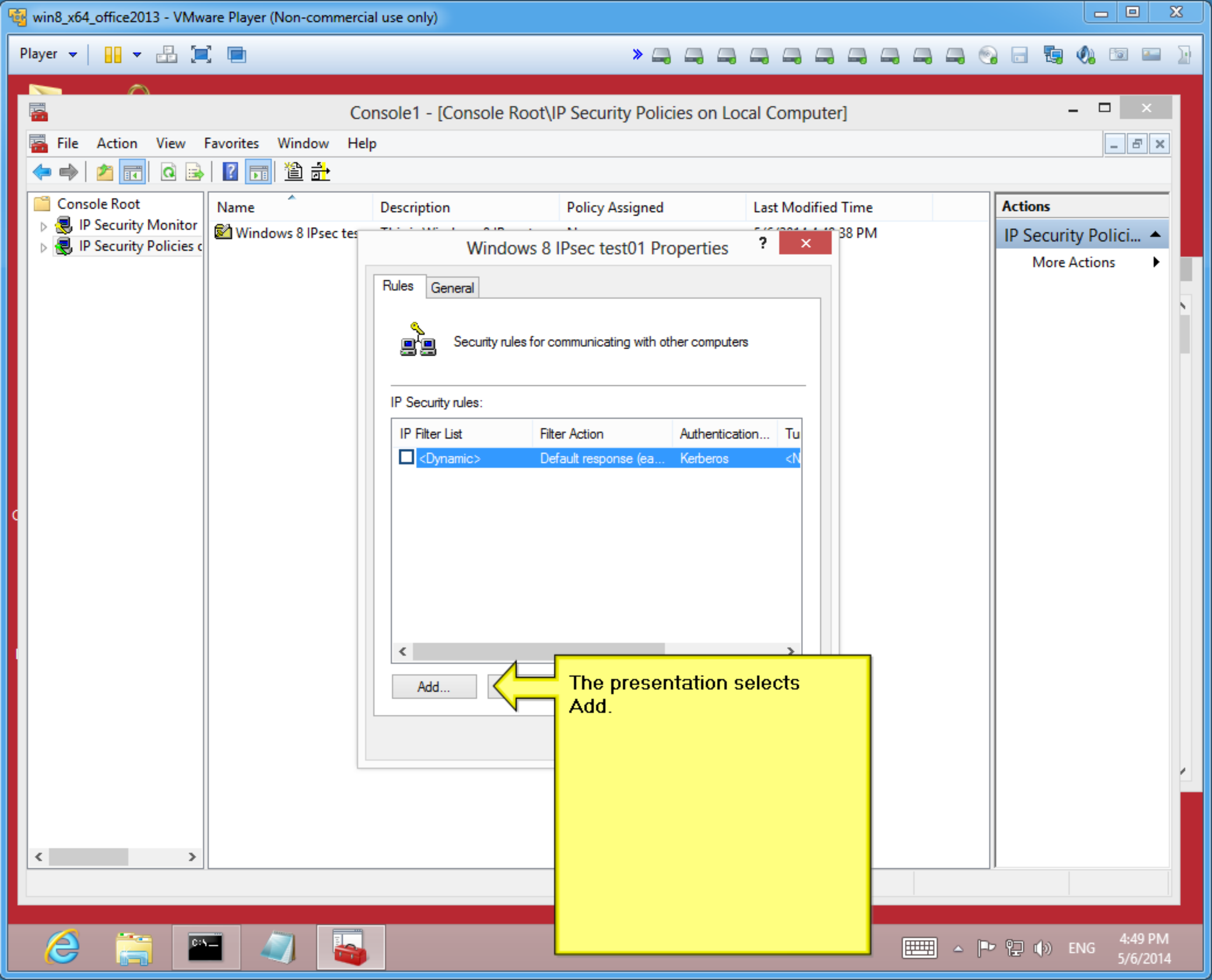
You have successfully completed specifying the properties for your new IP Security policy.

To edit your IP Security policy now, select the Edit properties check box, and then click Finish.

☑ Edit properties

To close this wizard, click Finish.

< Back | Finish | Cancel



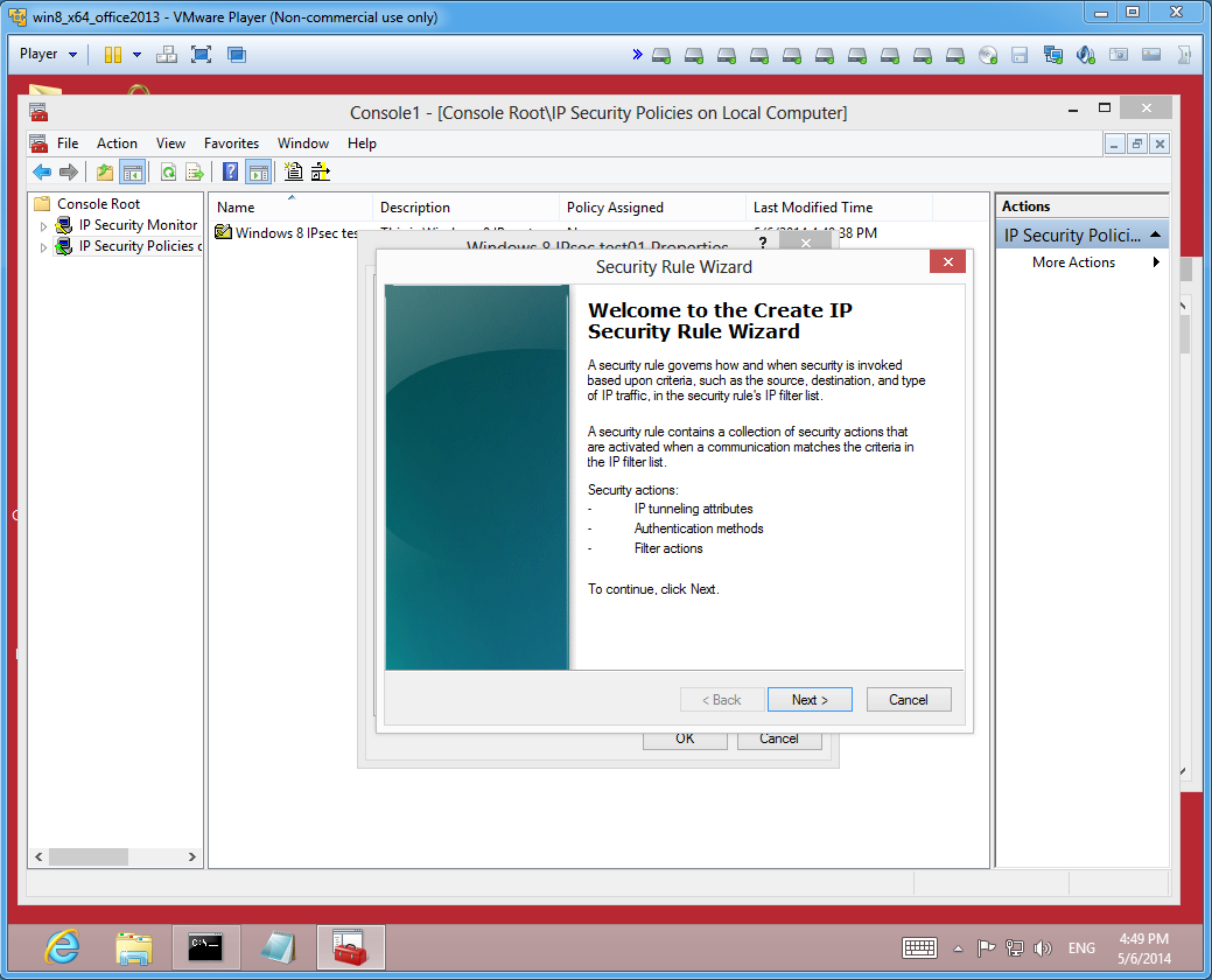
Windows 8 IPsec test01 Properties

Security rules for communicating with other computers

IP Security rules:

IP Filter List	Filter Action	Authentication...	Tu
□ <Dynamic>	Default response (ea...	Kerberos	<N

The presentation selects Add.



Welcome to the Create IP Security Rule Wizard

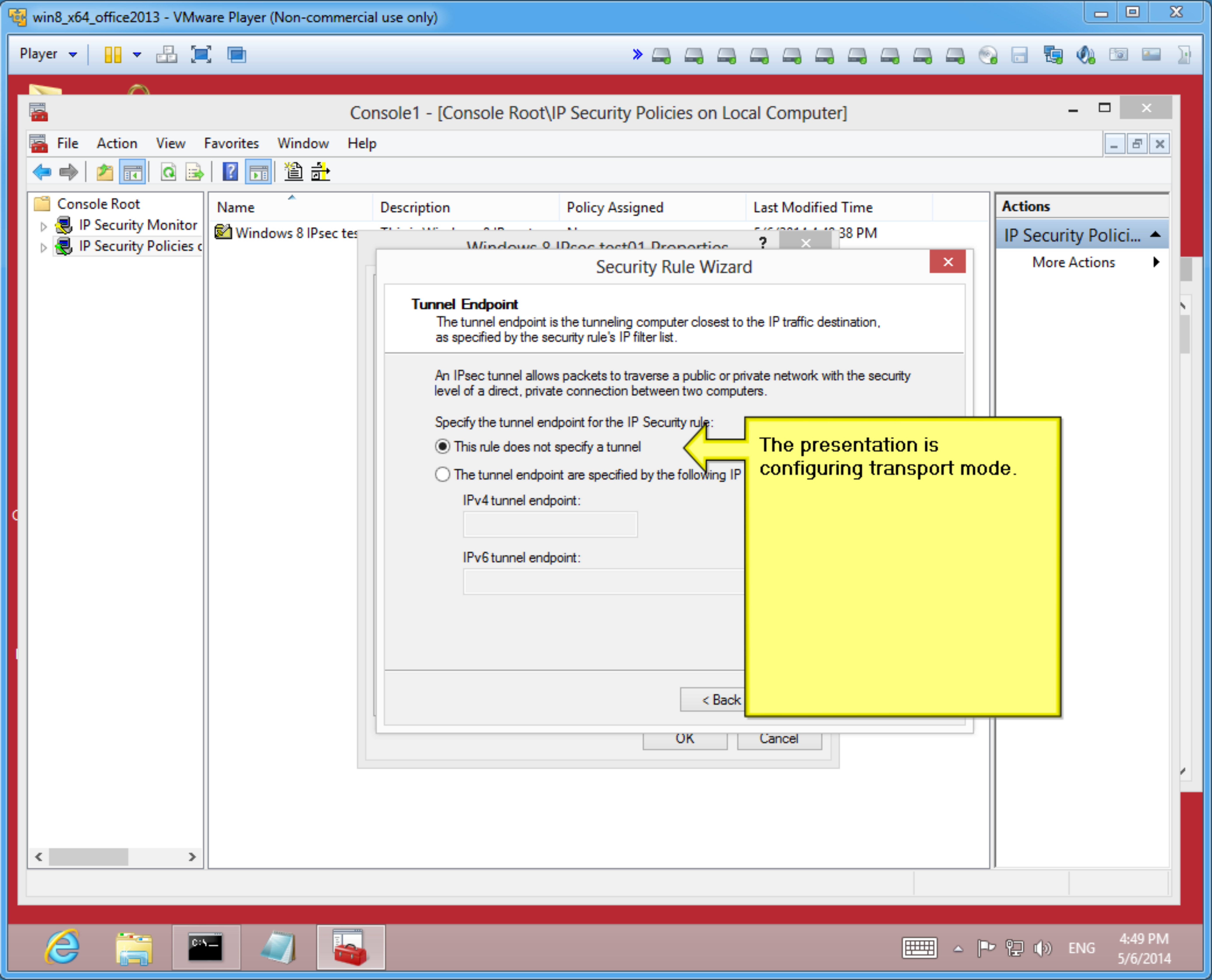
A security rule governs how and when security is invoked based upon criteria, such as the source, destination, and type of IP traffic, in the security rule's IP filter list.

A security rule contains a collection of security actions that are activated when a communication matches the criteria in the IP filter list.

Security actions:

- IP tunneling attributes
- Authentication methods
- Filter actions

To continue, click Next.



Security Rule Wizard

Tunnel Endpoint

The tunnel endpoint is the tunneling computer closest to the IP traffic destination, as specified by the security rule's IP filter list.

An IPsec tunnel allows packets to traverse a public or private network with the security level of a direct, private connection between two computers.

Specify the tunnel endpoint for the IP Security rule:

● This rule does not specify a tunnel

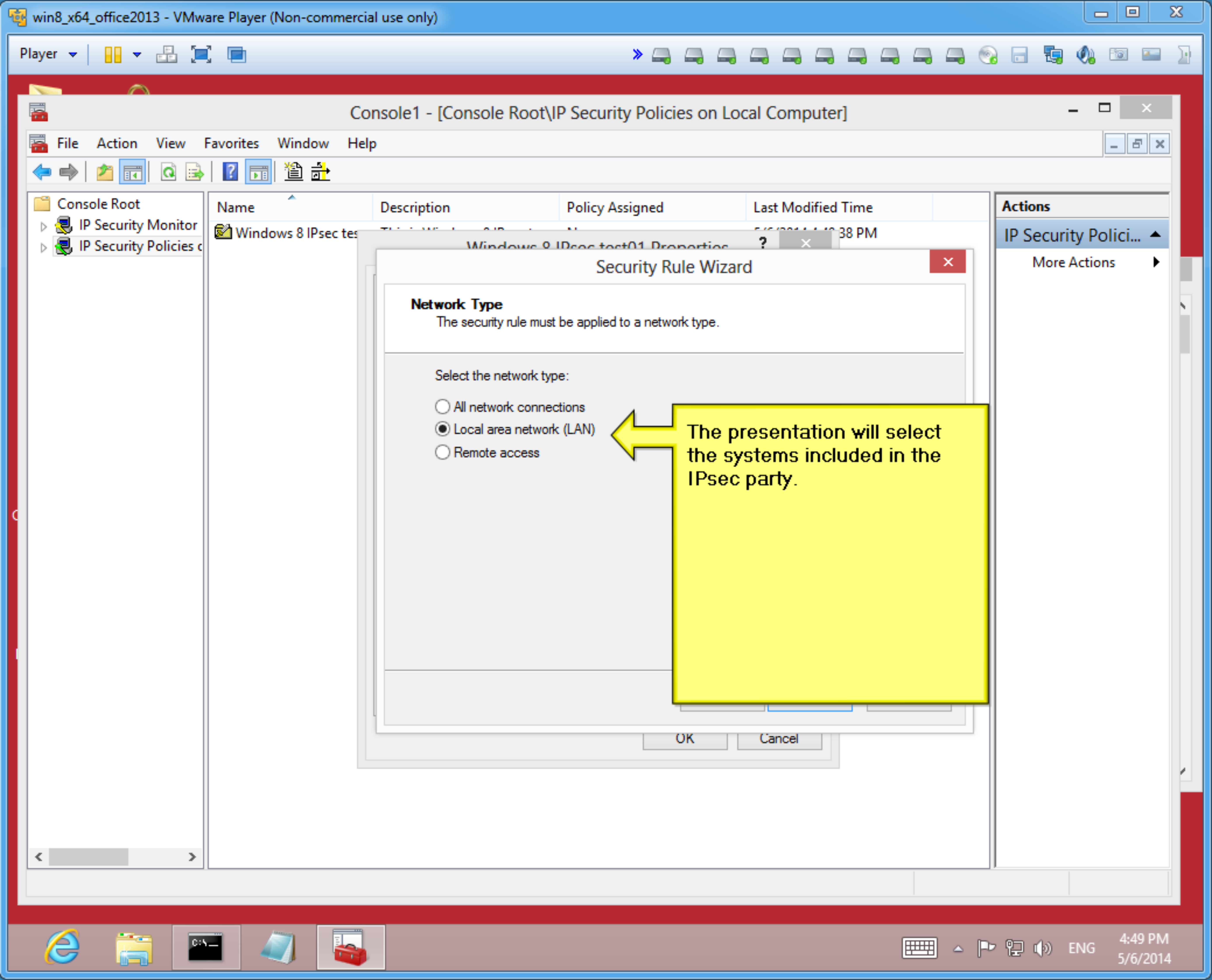
○ The tunnel endpoint are specified by the following IP

IPv4 tunnel endpoint:

IPv6 tunnel endpoint:

< Back

The presentation is configuring transport mode.



Security Rule Wizard

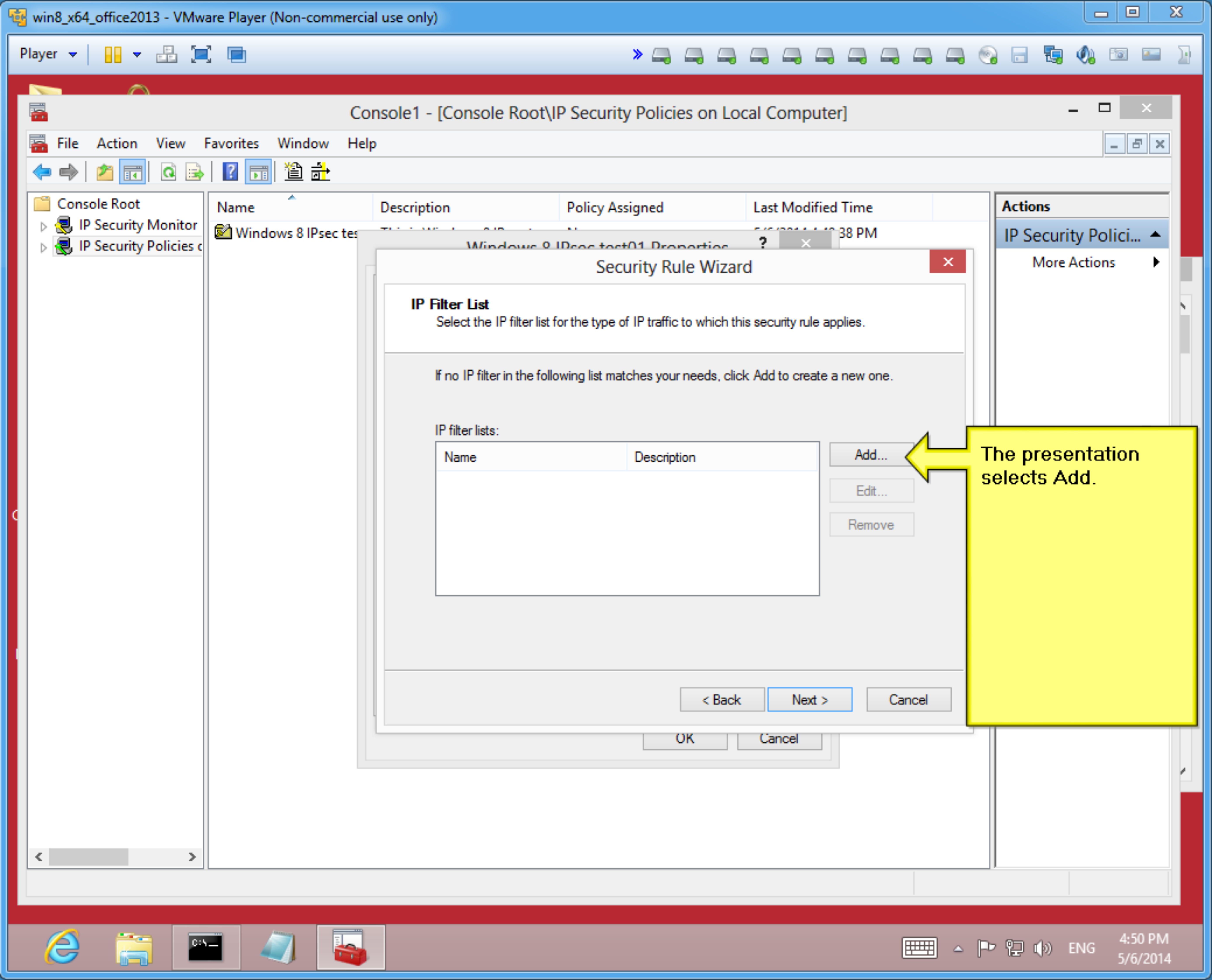
Network Type

The security rule must be applied to a network type.

Select the network type:

○ All network connections
● Local area network (LAN)
○ Remote access

The presentation will select the systems included in the IPsec party.



Security Rule Wizard

IP Filter List

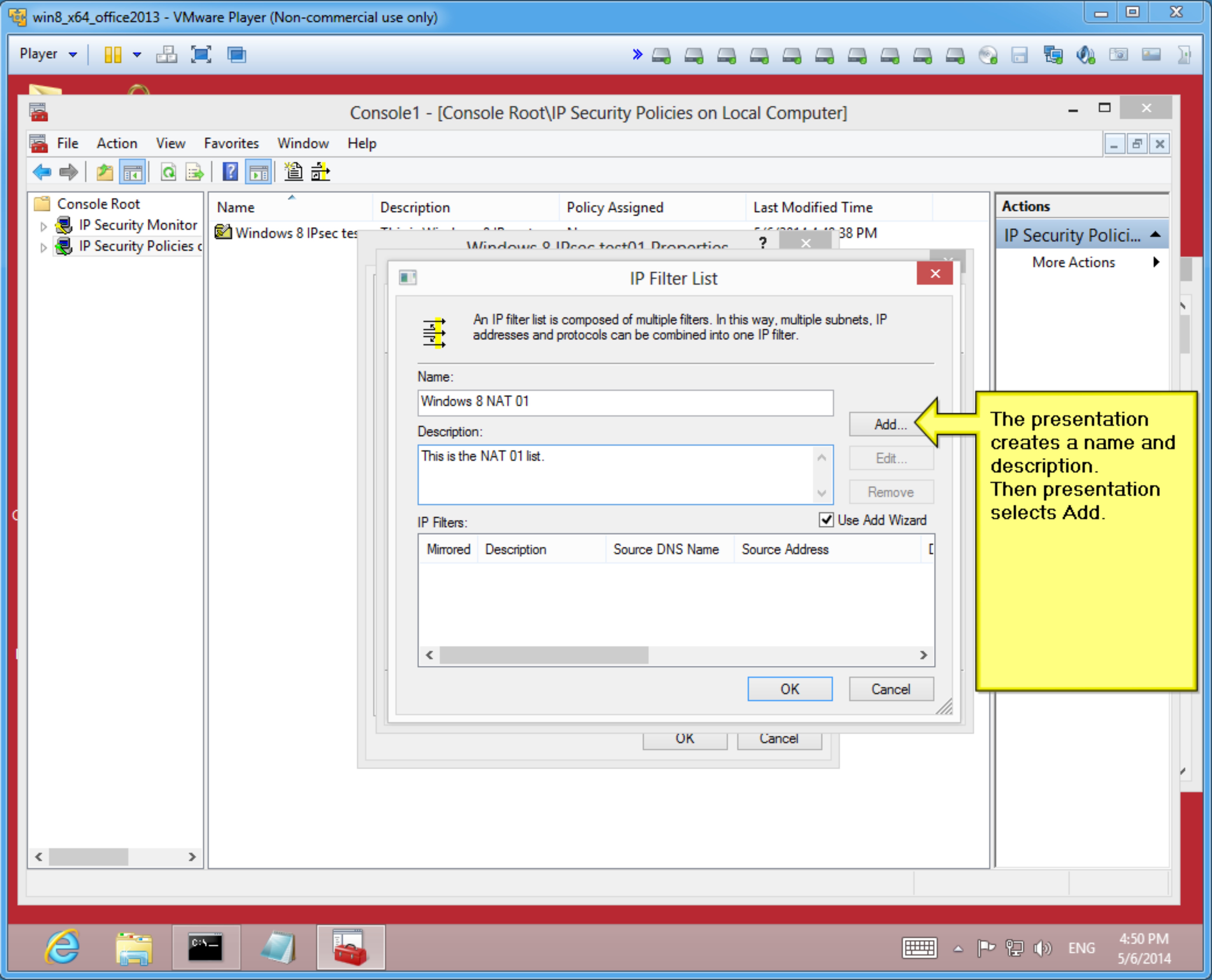
Select the IP filter list for the type of IP traffic to which this security rule applies.

If no IP filter in the following list matches your needs, click Add to create a new one.

IP filter lists:

Name	Description

The presentation selects Add.



IP Filter List

An IP filter list is composed of multiple filters. In this way, multiple subnets, IP addresses and protocols can be combined into one IP filter.

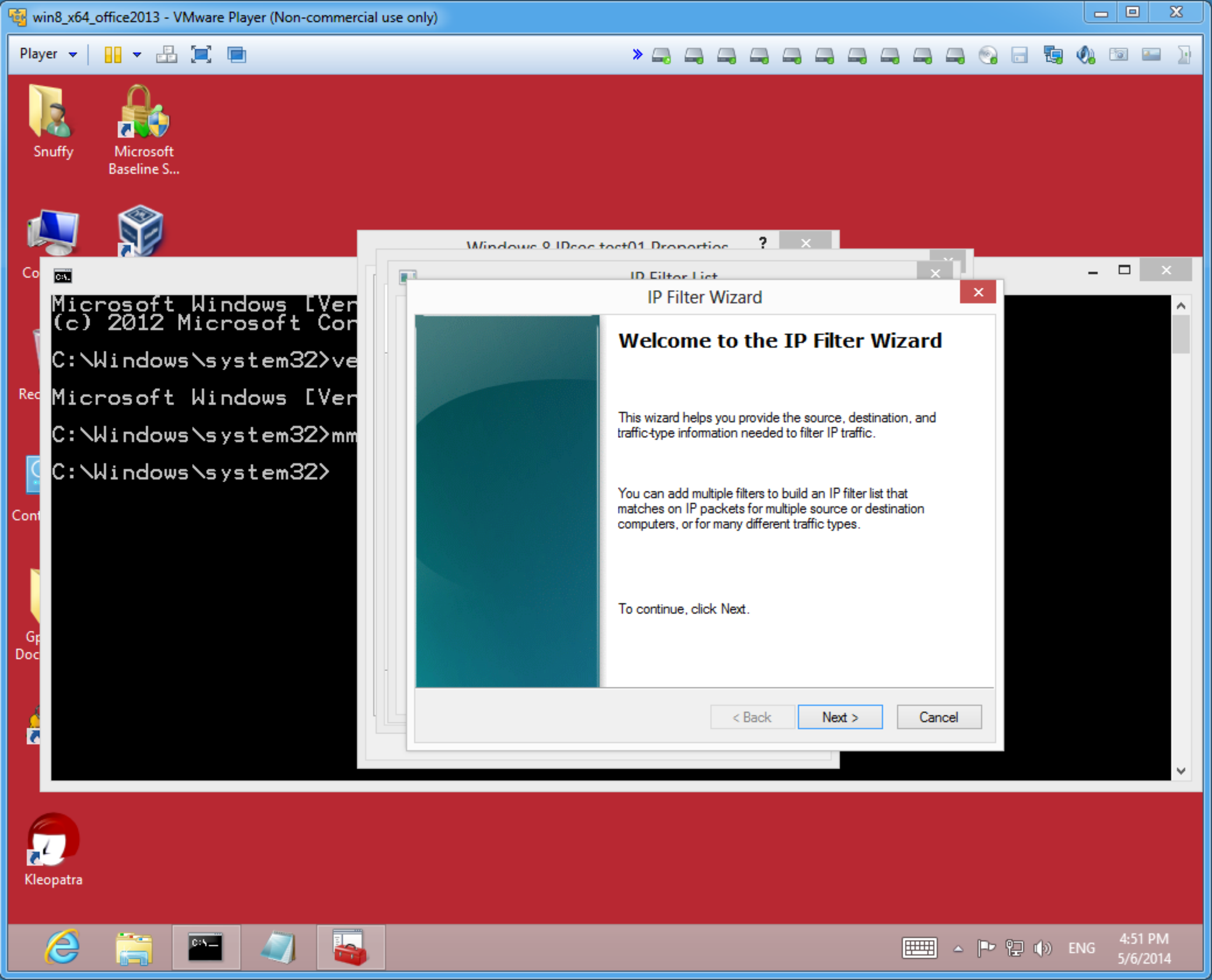
Name:
Windows 8 NAT 01

Description:
This is the NAT 01 list.

IP Filters: ☑ Use Add Wizard

Mirrored	Description	Source DNS Name	Source Address

The presentation creates a name and description.
Then presentation selects Add.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
IP Filter List
IP Filter Wizard
ENG
4:51 PM
5/6/2014

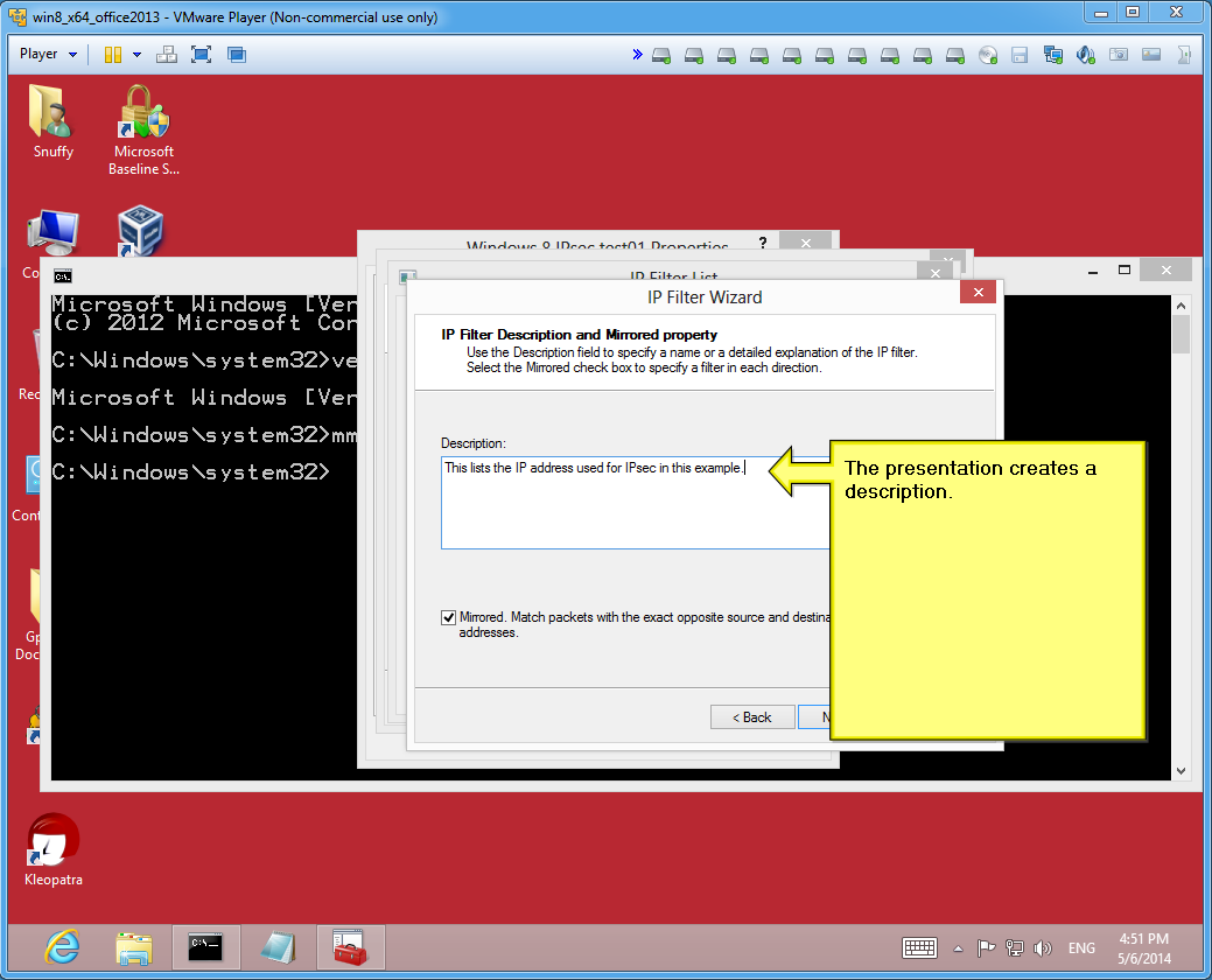
```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Welcome to the IP Filter Wizard

This wizard helps you provide the source, destination, and traffic-type information needed to filter IP traffic.

You can add multiple filters to build an IP filter list that matches on IP packets for multiple source or destination computers, or for many different traffic types.

To continue, click Next.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
IP Filter List
ENG
4:51 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

IP Filter Wizard

IP Filter Description and Mirrored property

Use the Description field to specify a name or a detailed explanation of the IP filter. Select the Mirrored check box to specify a filter in each direction.

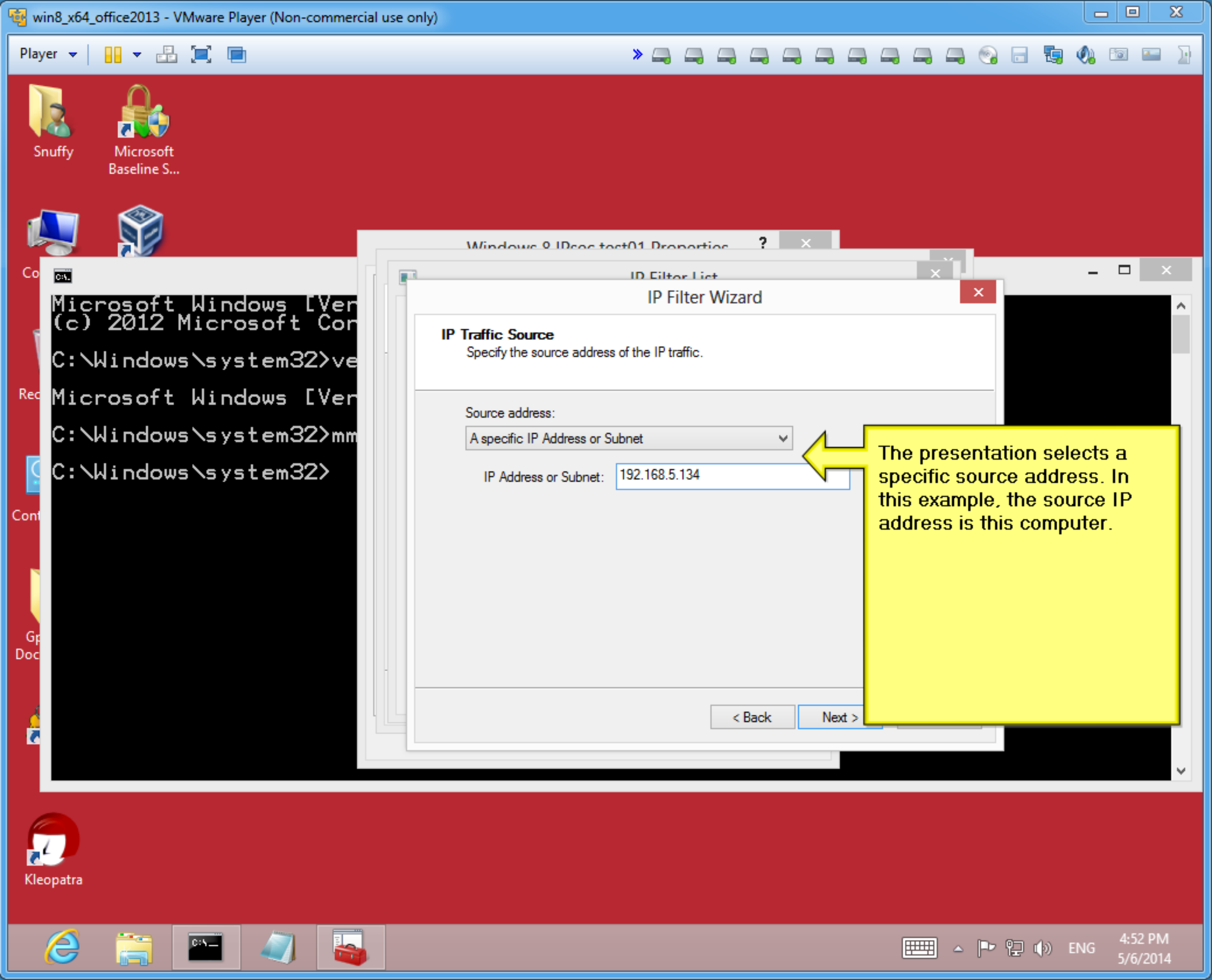
Description:

This lists the IP address used for IPsec in this example.

☑ Mirrored. Match packets with the exact opposite source and destina addresses.

< Back N

The presentation creates a description.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
IP Filter List
ENG
4:52 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

IP Filter Wizard

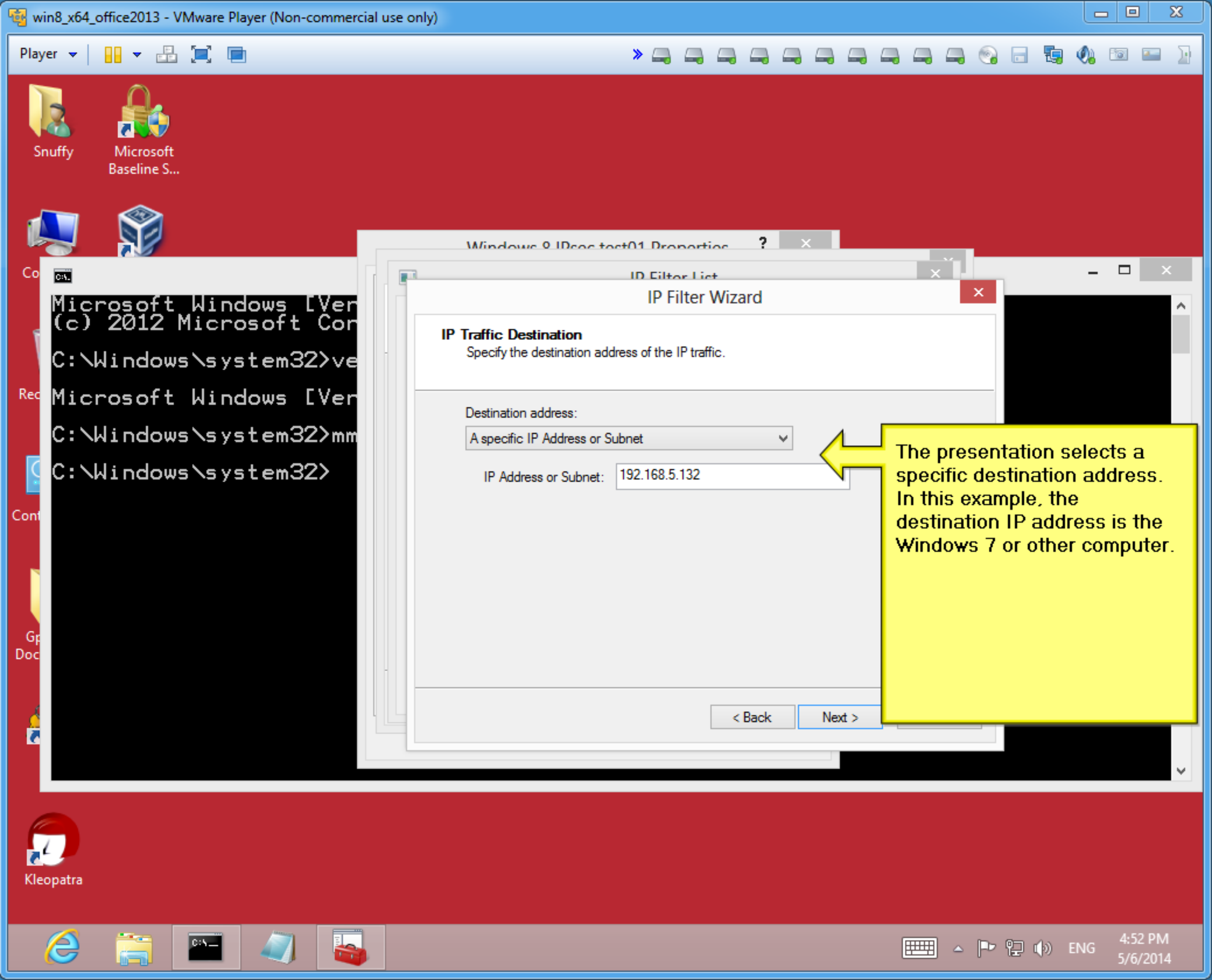
IP Traffic Source

Specify the source address of the IP traffic.

Source address: A specific IP Address or Subnet

IP Address or Subnet: 192.168.5.134

The presentation selects a specific source address. In this example, the source IP address is this computer.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
IP Filter List
< Back
Next >
ENG
4:52 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

IP Filter Wizard

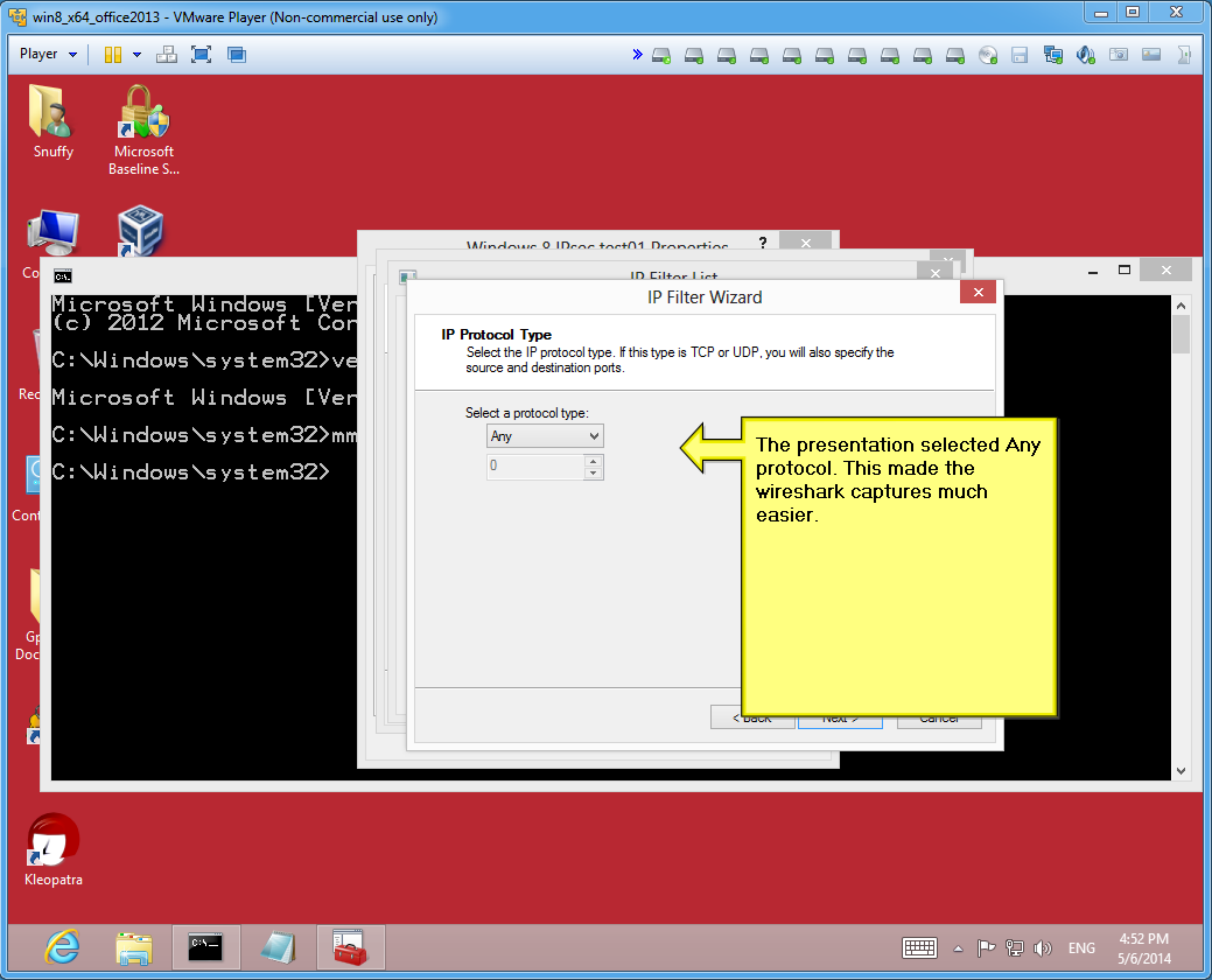
IP Traffic Destination

Specify the destination address of the IP traffic.

Destination address: A specific IP Address or Subnet

IP Address or Subnet: 192.168.5.132

The presentation selects a specific destination address. In this example, the destination IP address is the Windows 7 or other computer.



win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
IP Filter List
ENG
4:52 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

IP Filter Wizard

IP Protocol Type

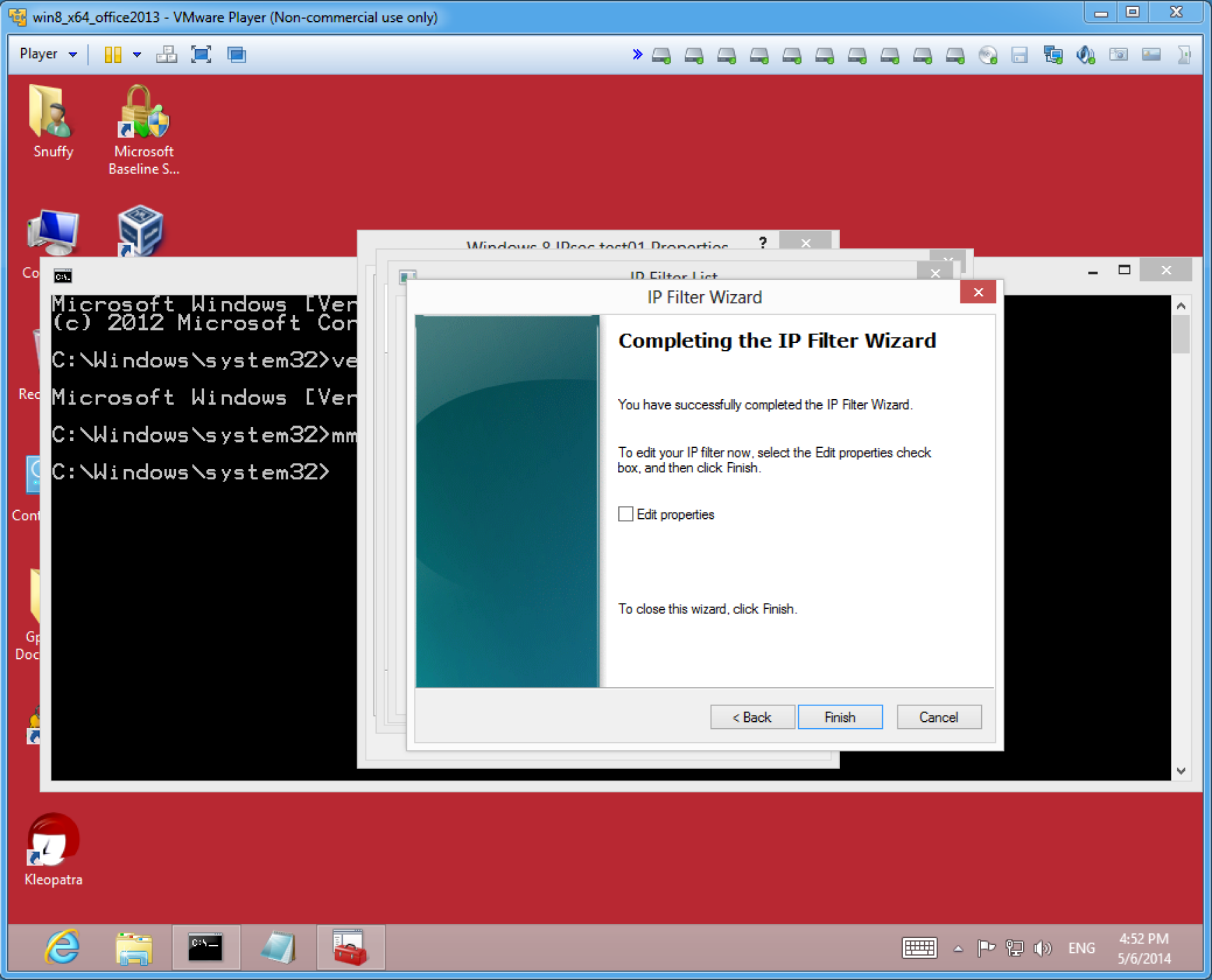
Select the IP protocol type. If this type is TCP or UDP, you will also specify the source and destination ports.

Select a protocol type:

Any

0

The presentation selected Any protocol. This made the wireshark captures much easier.



win8_x64_office2013 - VMware Player (Non-commercial use only)

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Windows 8 IPsec test01 Properties

IP Filter List

IP Filter Wizard

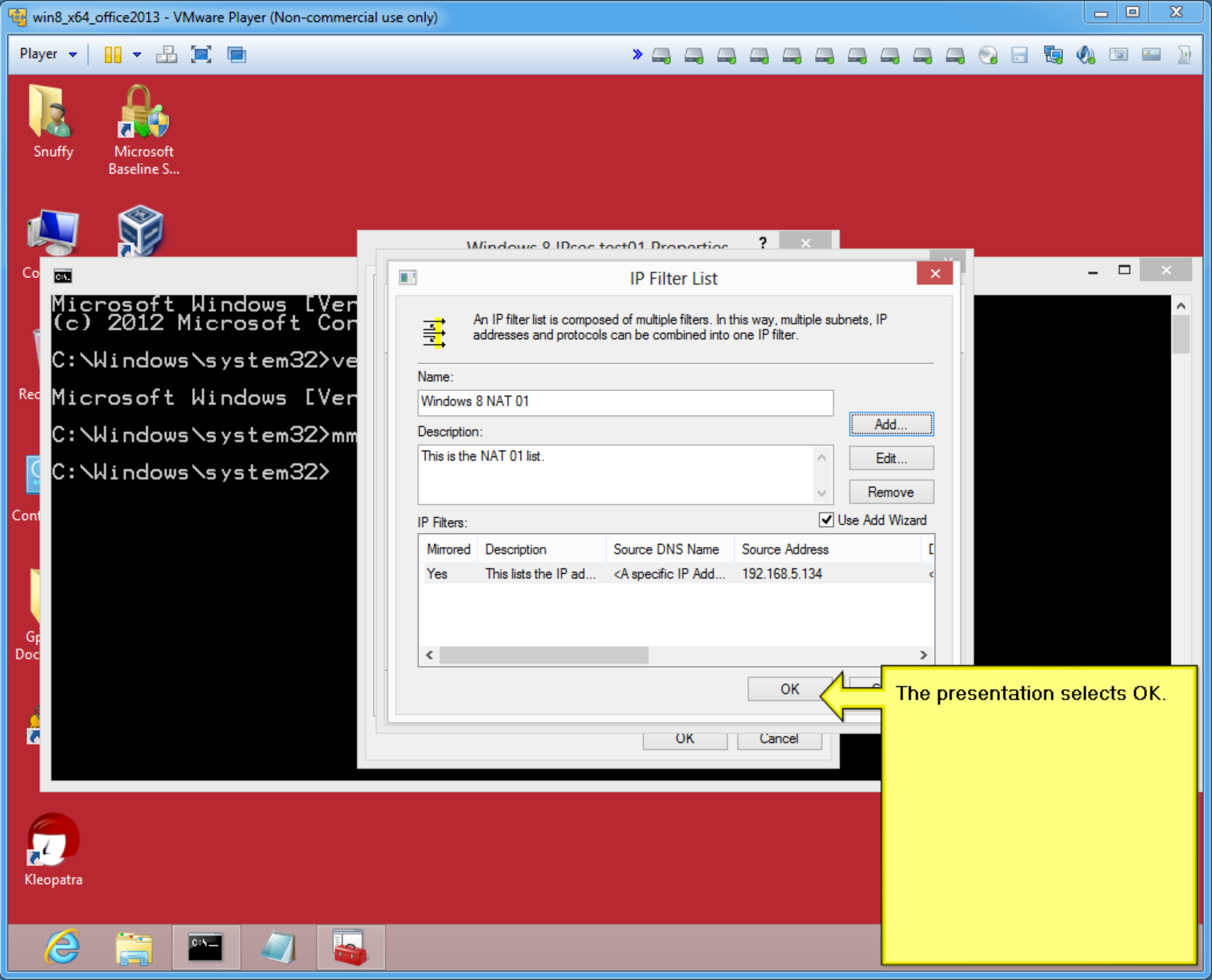
Completing the IP Filter Wizard

You have successfully completed the IP Filter Wizard.

To edit your IP filter now, select the Edit properties check box, and then click Finish.

□ Edit properties

To close this wizard, click Finish.



win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
OK
Cancel

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

IP Filter List

An IP filter list is composed of multiple filters. In this way, multiple subnets, IP addresses and protocols can be combined into one IP filter.

Name: Windows 8 NAT 01

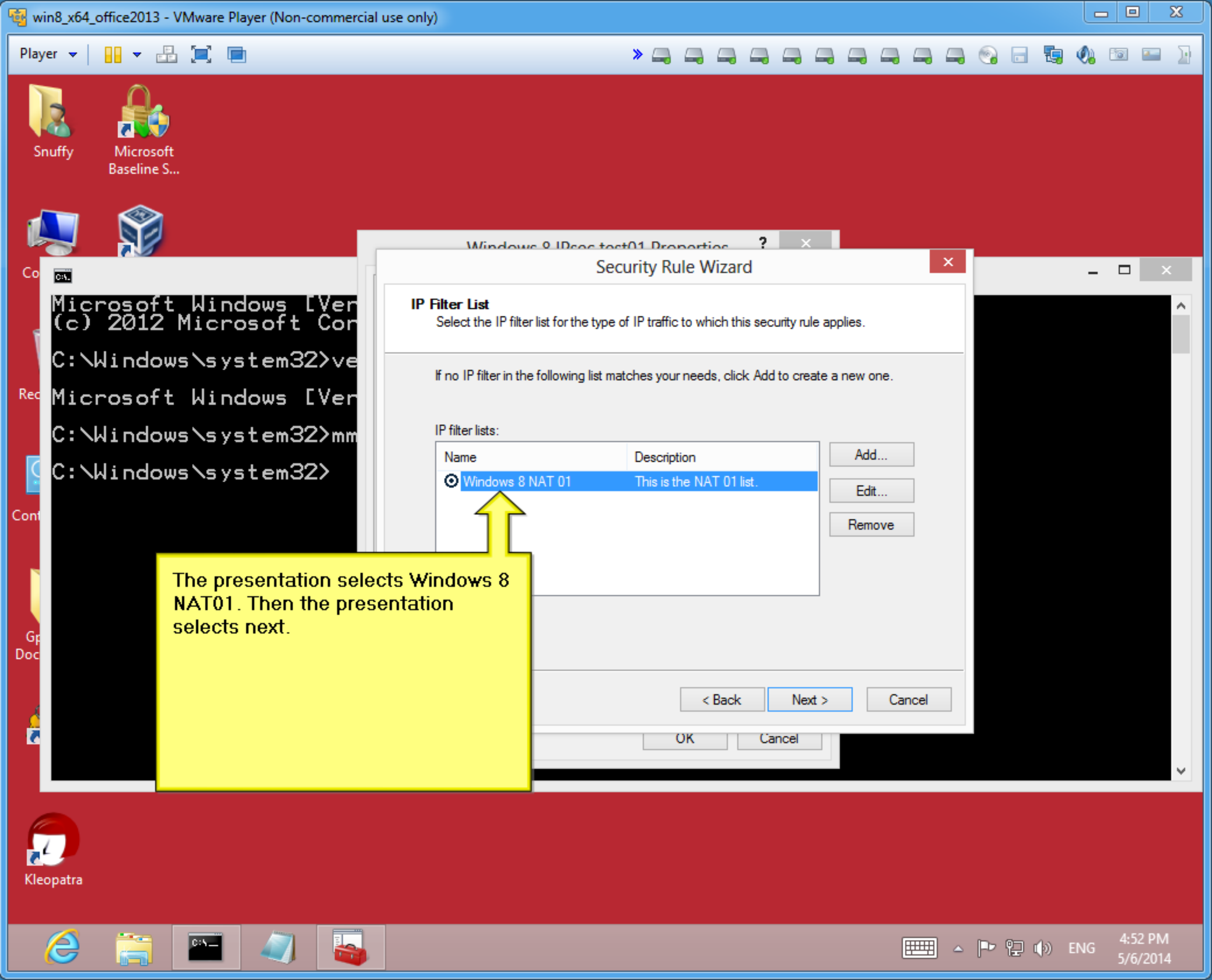
Description: This is the NAT 01 list.

☑ Use Add Wizard

IP Filters:

Mirrored	Description	Source DNS Name	Source Address
Yes	This lists the IP ad...	<A specific IP Add...	192.168.5.134

The presentation selects OK.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
OK
Cancel
4:52 PM
5/6/2014
ENG

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Security Rule Wizard

IP Filter List

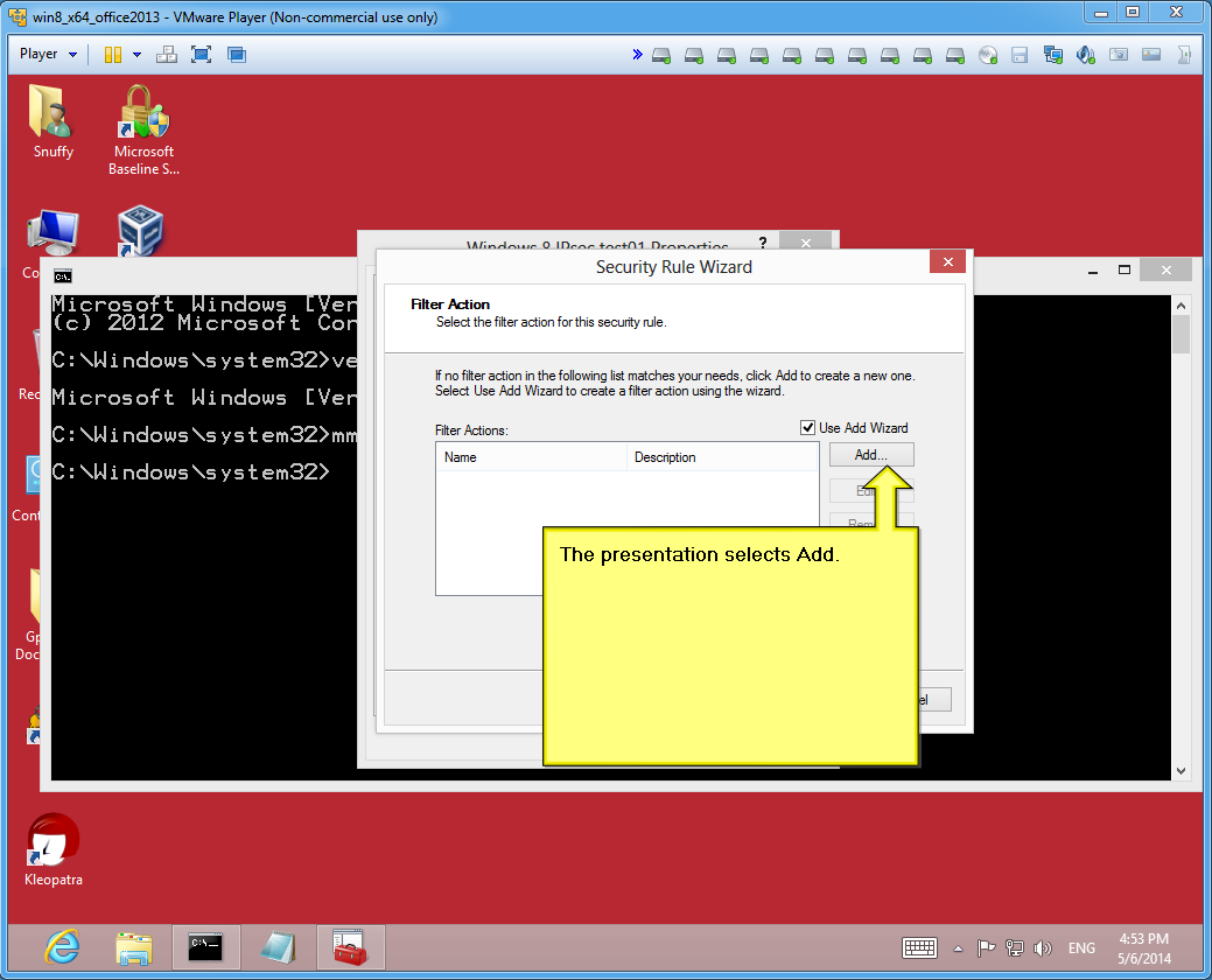
Select the IP filter list for the type of IP traffic to which this security rule applies.

If no IP filter in the following list matches your needs, click Add to create a new one.

IP filter lists:

Name	Description
● Windows 8 NAT 01	This is the NAT 01 list.

The presentation selects Windows 8 NAT01. Then the presentation selects next.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
ENG
4:53 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Security Rule Wizard

Filter Action

Select the filter action for this security rule.

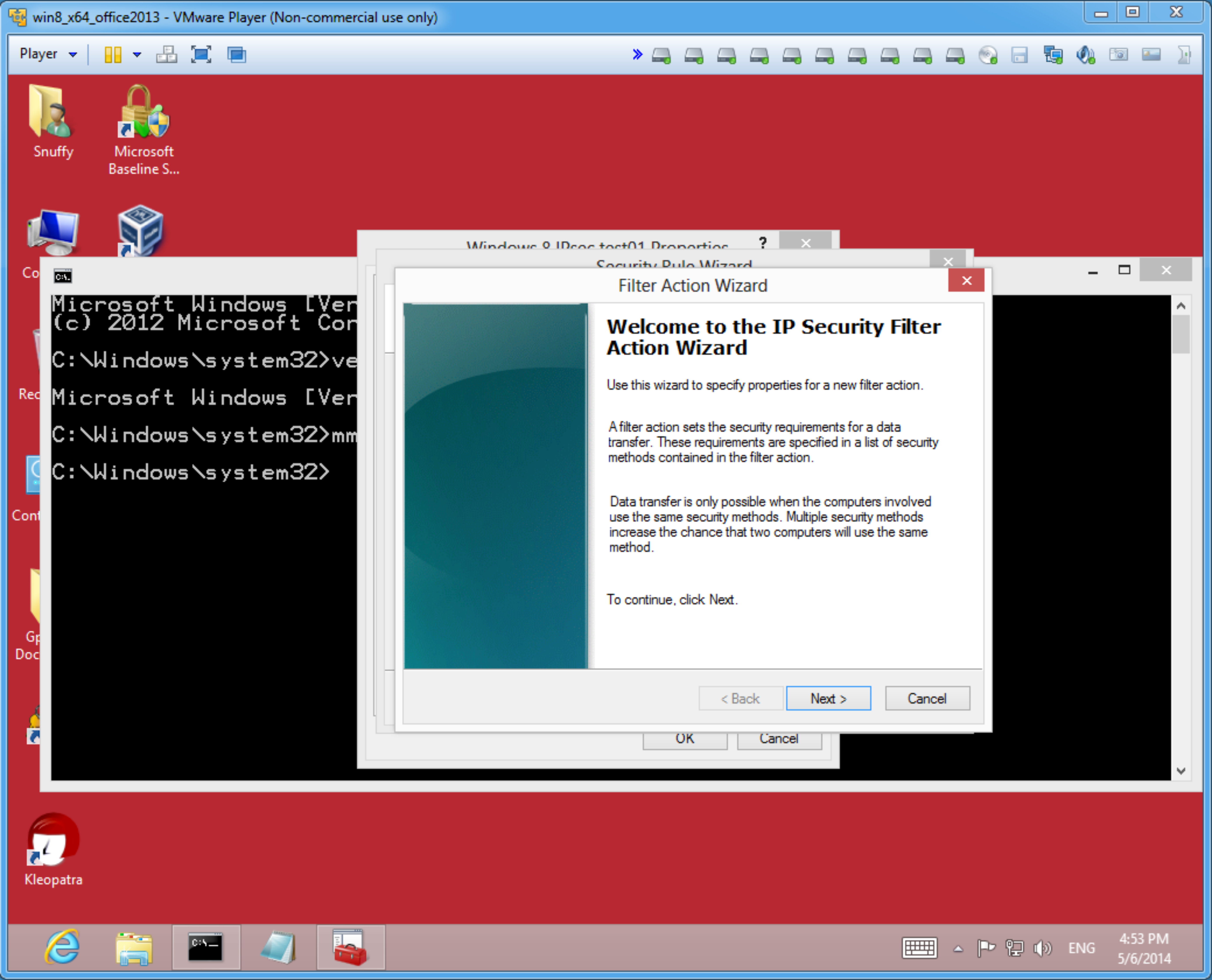
If no filter action in the following list matches your needs, click Add to create a new one. Select Use Add Wizard to create a filter action using the wizard.

Filter Actions:

☑ Use Add Wizard

Name	Description

The presentation selects Add.



```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Filter Action Wizard

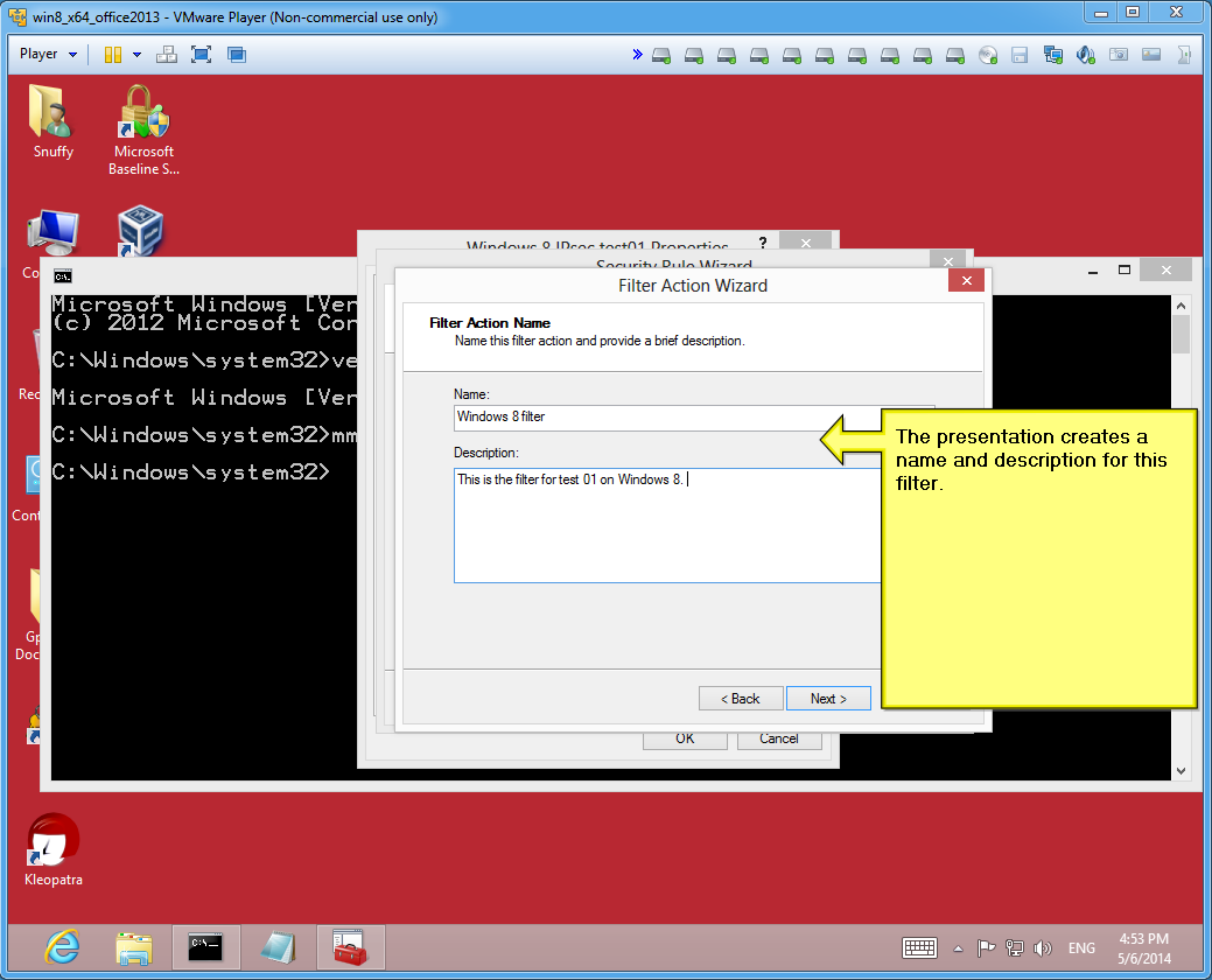
Welcome to the IP Security Filter Action Wizard

Use this wizard to specify properties for a new filter action.

A filter action sets the security requirements for a data transfer. These requirements are specified in a list of security methods contained in the filter action.

Data transfer is only possible when the computers involved use the same security methods. Multiple security methods increase the chance that two computers will use the same method.

To continue, click Next.



```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

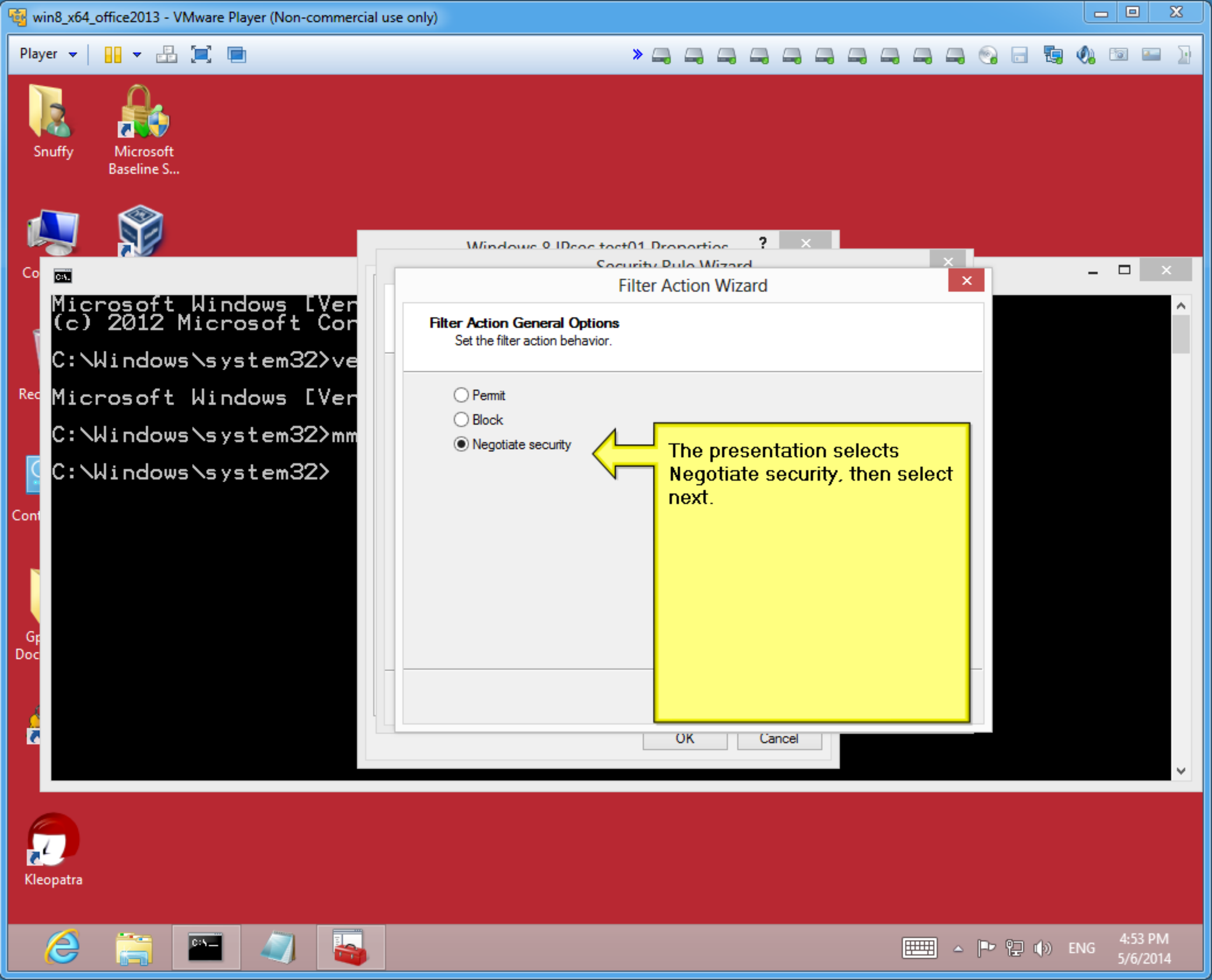
Filter Action Name

Name this filter action and provide a brief description.

Name: Windows 8 filter

Description: This is the filter for test 01 on Windows 8.

The presentation creates a name and description for this filter.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
Security Rule Wizard
OK
Cancel
ENG
4:53 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Filter Action Wizard

Filter Action General Options

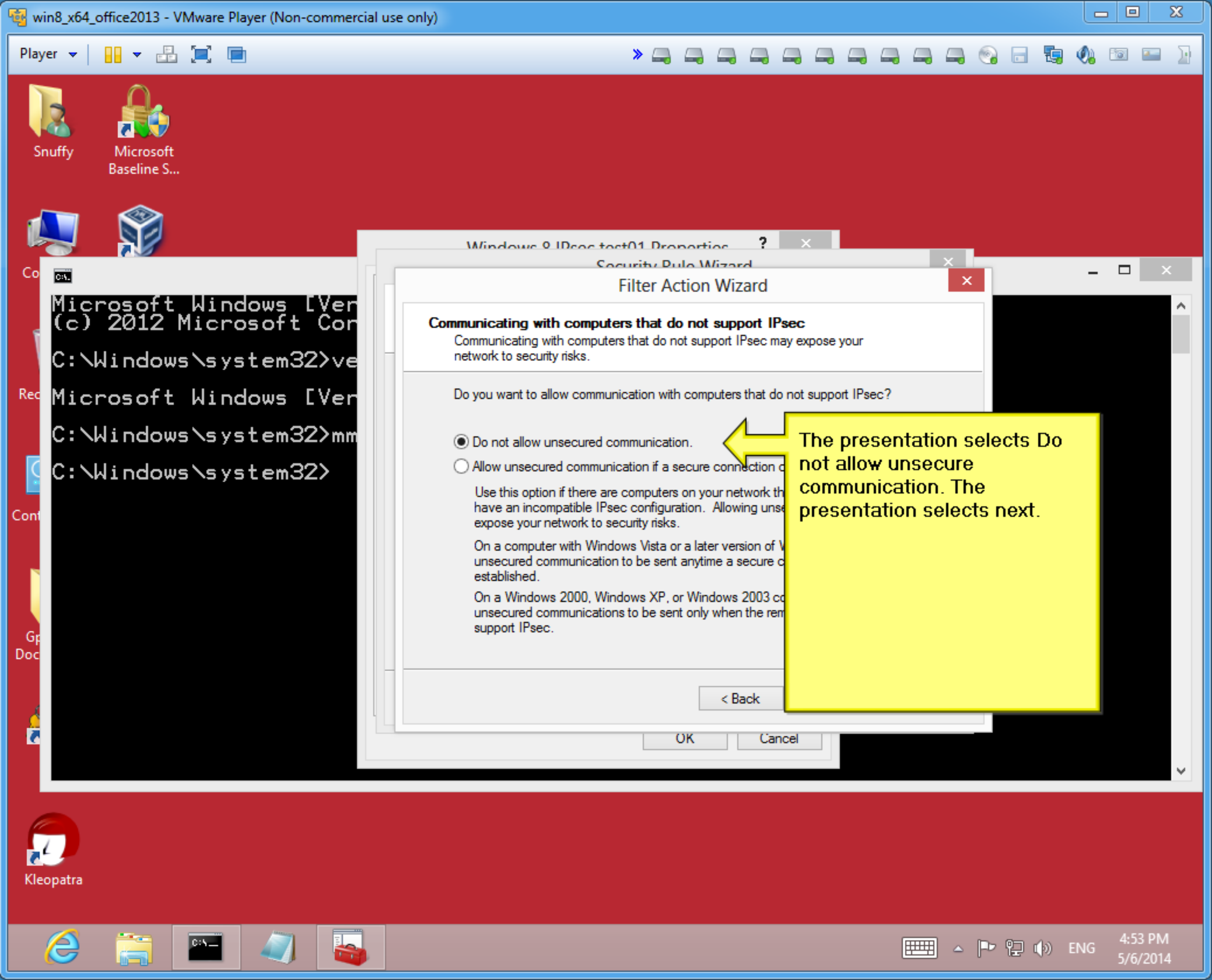
Set the filter action behavior.

○ Permit

○ Block

● Negotiate security

The presentation selects Negotiate security, then select next.



```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Communicating with computers that do not support IPsec

Communicating with computers that do not support IPsec may expose your network to security risks.

Do you want to allow communication with computers that do not support IPsec?

● Do not allow unsecured communication.

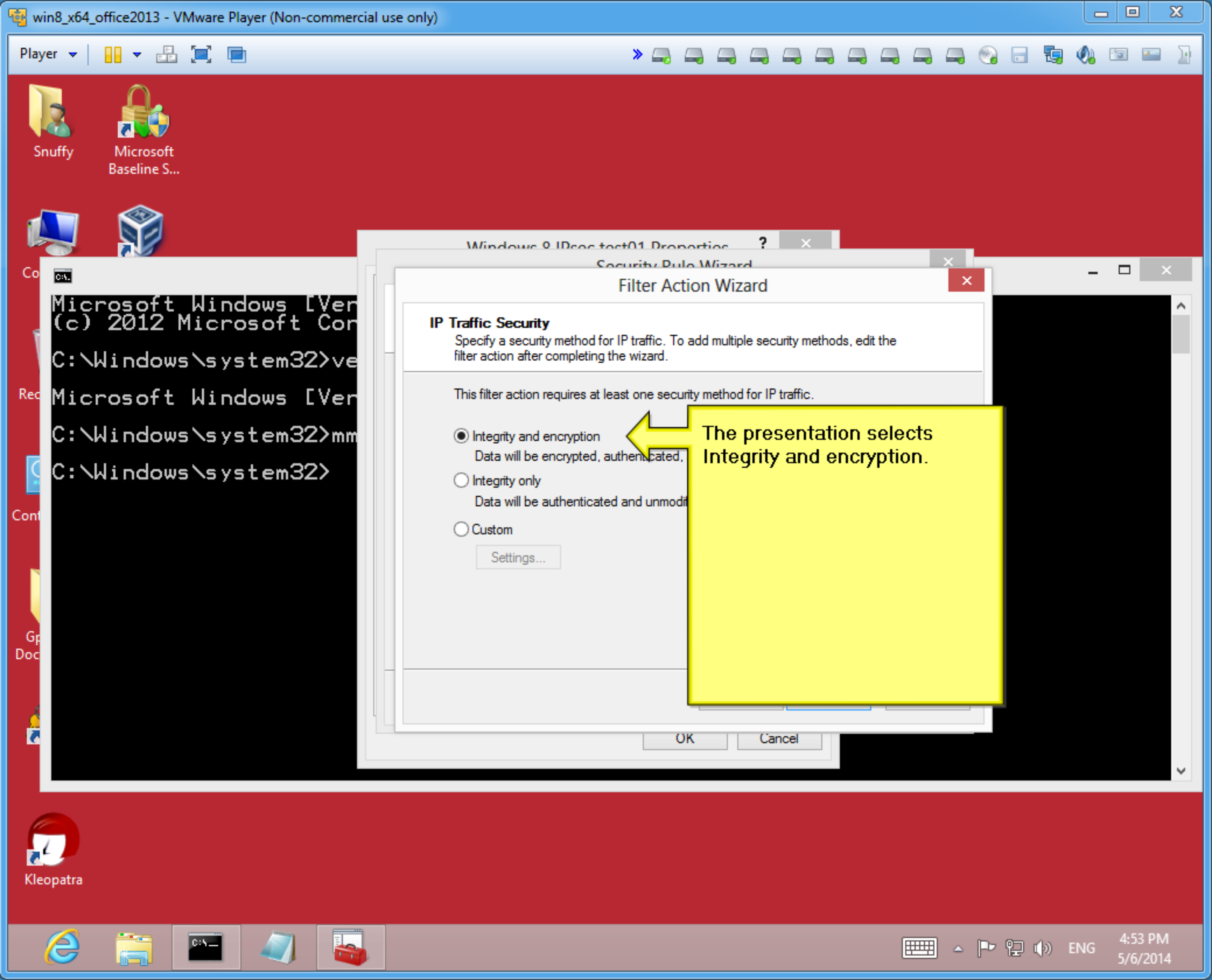
○ Allow unsecured communication if a secure connection c

Use this option if there are computers on your network th have an incompatible IPsec configuration. Allowing unse expose your network to security risks.

On a computer with Windows Vista or a later version of W unsecured communication to be sent anytime a secure c established.

On a Windows 2000, Windows XP, or Windows 2003 co unsecured communications to be sent only when the rem support IPsec.

The presentation selects Do not allow unsecure communication. The presentation selects next.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
Security Rule Wizard
OK
Cancel
ENG
4:53 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Filter Action Wizard

IP Traffic Security

Specify a security method for IP traffic. To add multiple security methods, edit the filter action after completing the wizard.

This filter action requires at least one security method for IP traffic.

● Integrity and encryption

Data will be encrypted, authenticated,

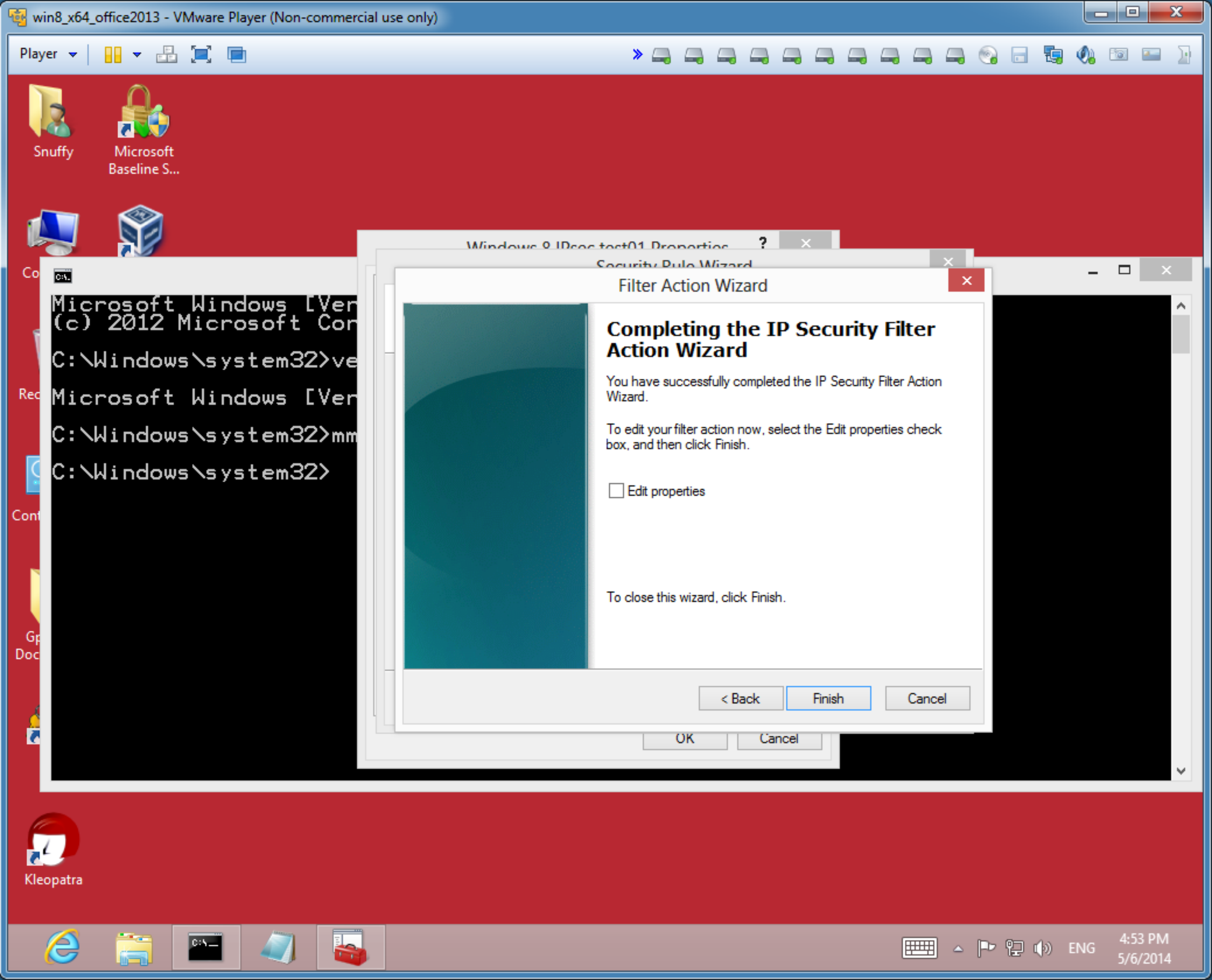
○ Integrity only

Data will be authenticated and unmodi

○ Custom

Settings...

The presentation selects Integrity and encryption.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
Security Rule Wizard
OK
Cancel
ENG
4:53 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Filter Action Wizard

Completing the IP Security Filter Action Wizard

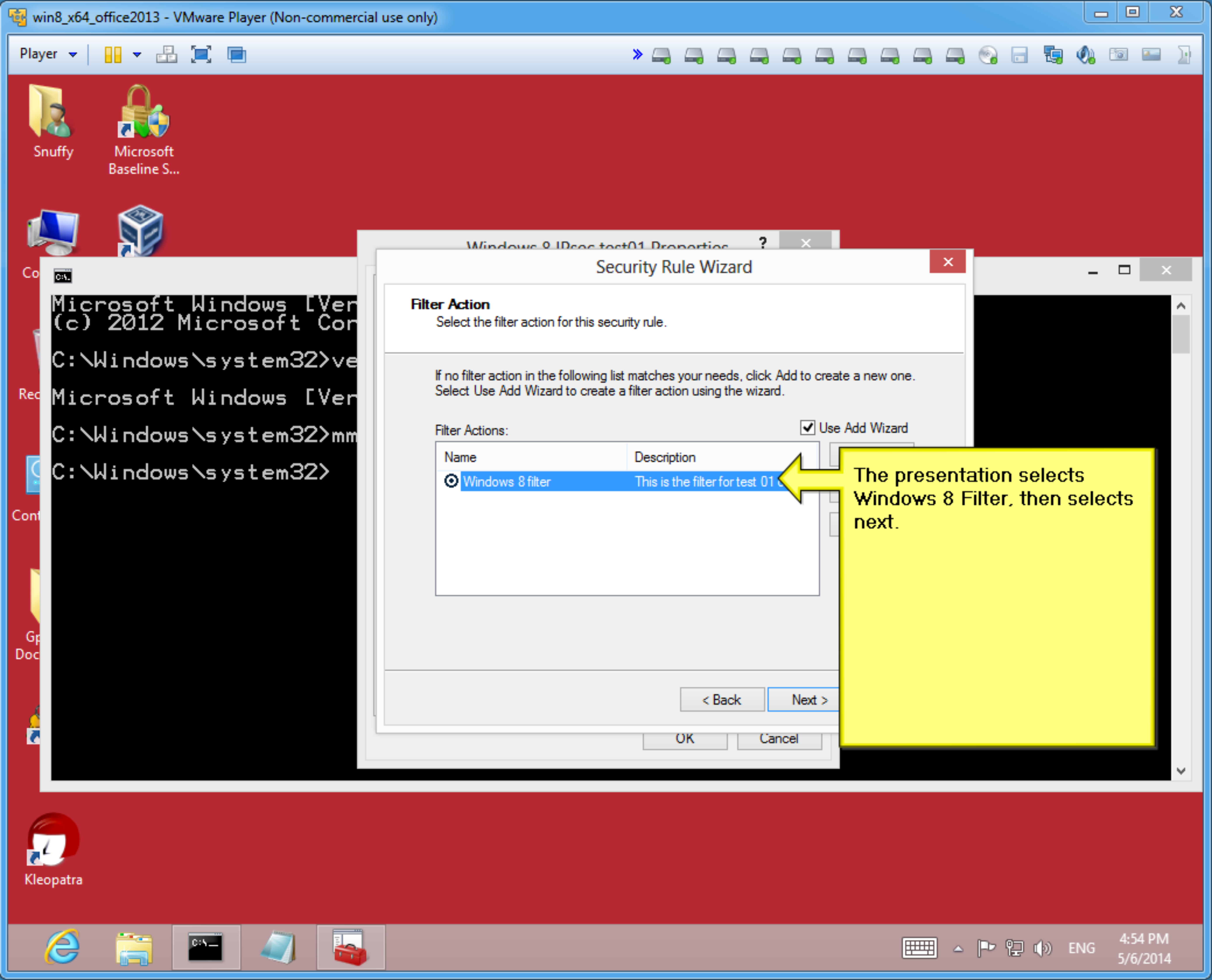
You have successfully completed the IP Security Filter Action Wizard.

To edit your filter action now, select the Edit properties check box, and then click Finish.

□ Edit properties

To close this wizard, click Finish.

< Back | Finish | Cancel



win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
OK
Cancel
ENG
4:54 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Security Rule Wizard

Filter Action
Select the filter action for this security rule.

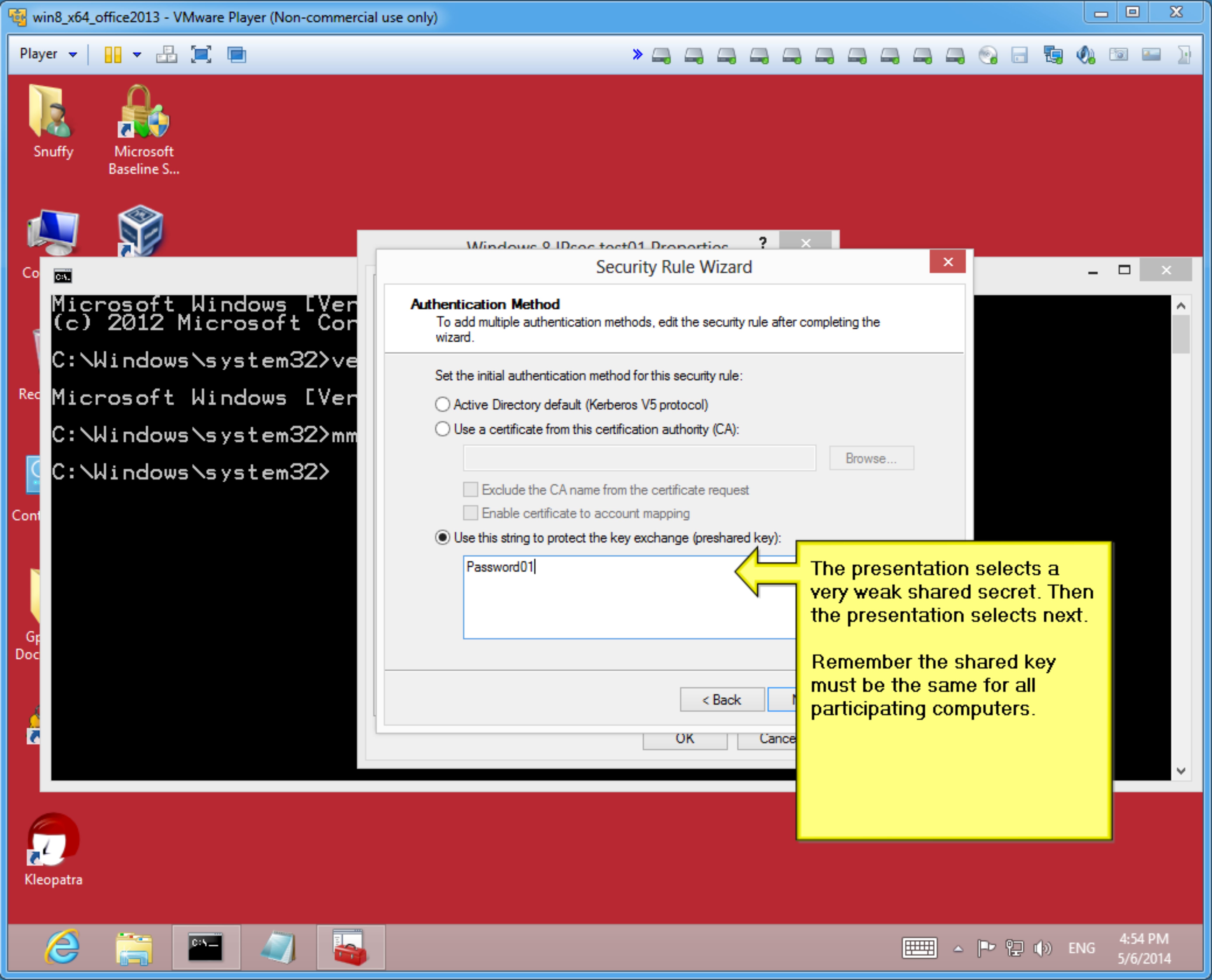
If no filter action in the following list matches your needs, click Add to create a new one. Select Use Add Wizard to create a filter action using the wizard.

Filter Actions: ☑ Use Add Wizard

Name	Description
● Windows 8 filter	This is the filter for test 01

< Back   Next >

The presentation selects Windows 8 Filter, then selects next.



win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
OK
Cance
ENG
4:54 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Security Rule Wizard

Authentication Method

To add multiple authentication methods, edit the security rule after completing the wizard.

Set the initial authentication method for this security rule:

○ Active Directory default (Kerberos V5 protocol)

○ Use a certificate from this certification authority (CA):

Browse...

□ Exclude the CA name from the certificate request

□ Enable certificate to account mapping

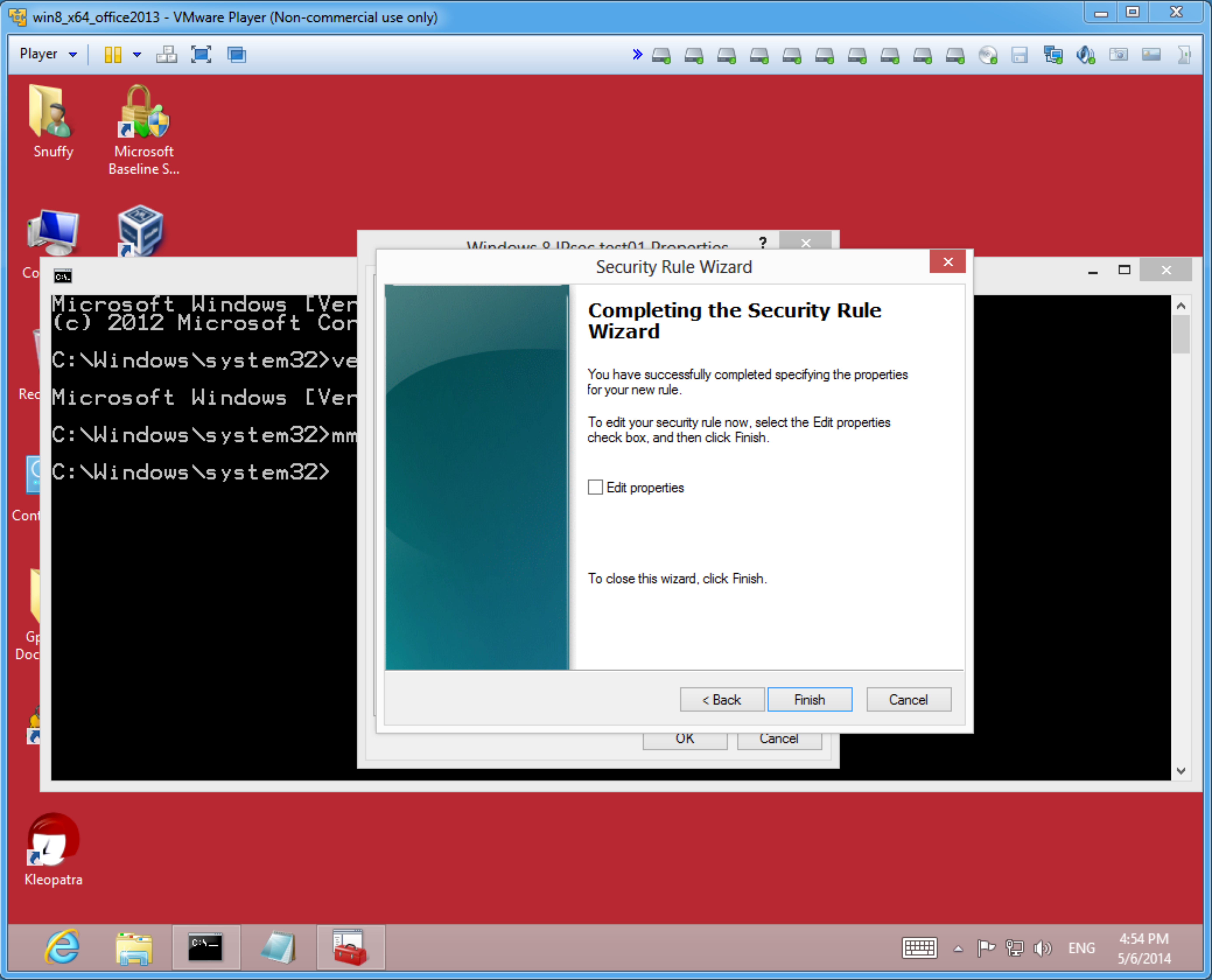
● Use this string to protect the key exchange (preshared key):

Password01

< Back

The presentation selects a very weak shared secret. Then the presentation selects next.

Remember the shared key must be the same for all participating computers.


win8_x64_office2013 - VMware Player (Non-commercial use only)
Player
Snuffy
Microsoft Baseline S...
Kleopatra
Windows 8 IPsec test01 Properties
OK
Cancel
ENG
4:54 PM
5/6/2014

```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

Security Rule Wizard

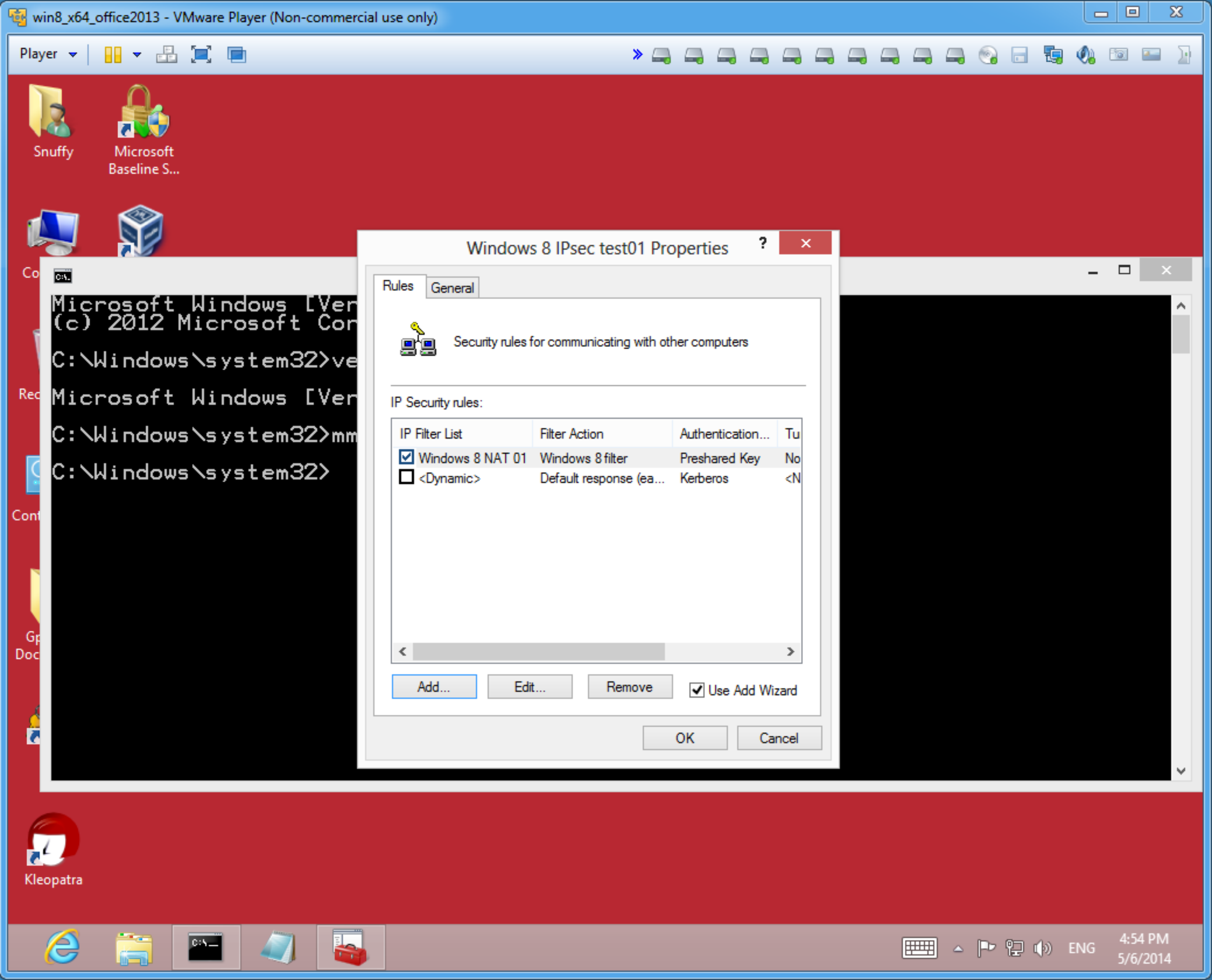
Completing the Security Rule Wizard

You have successfully completed specifying the properties for your new rule.

To edit your security rule now, select the Edit properties check box, and then click Finish.

□ Edit properties

To close this wizard, click Finish.



```
Microsoft Windows [Ver
(c) 2012 Microsoft Cor

C:\Windows\system32>ve

Microsoft Windows [Ver

C:\Windows\system32>mm

C:\Windows\system32>
```

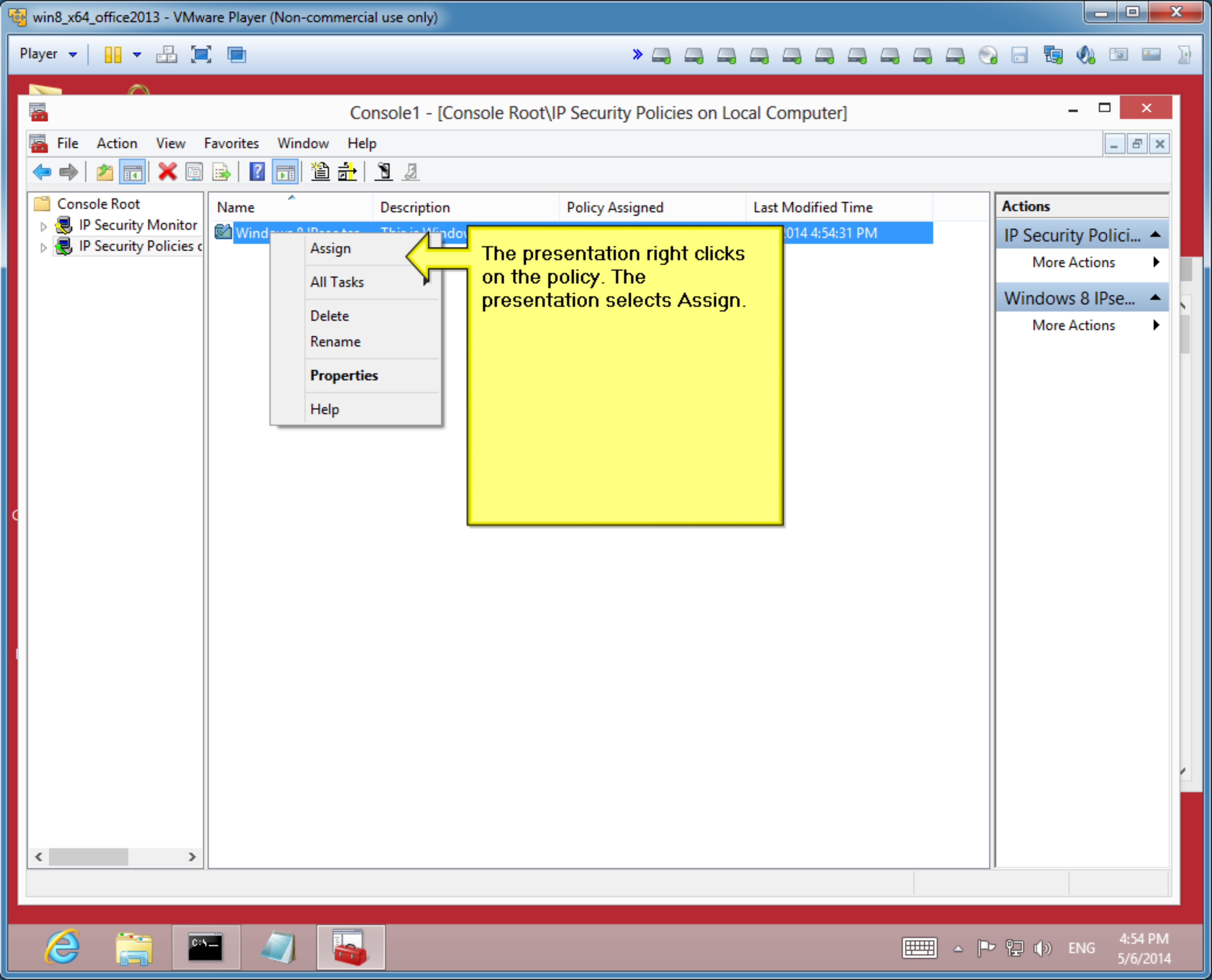
Windows 8 IPsec test01 Properties

Security rules for communicating with other computers

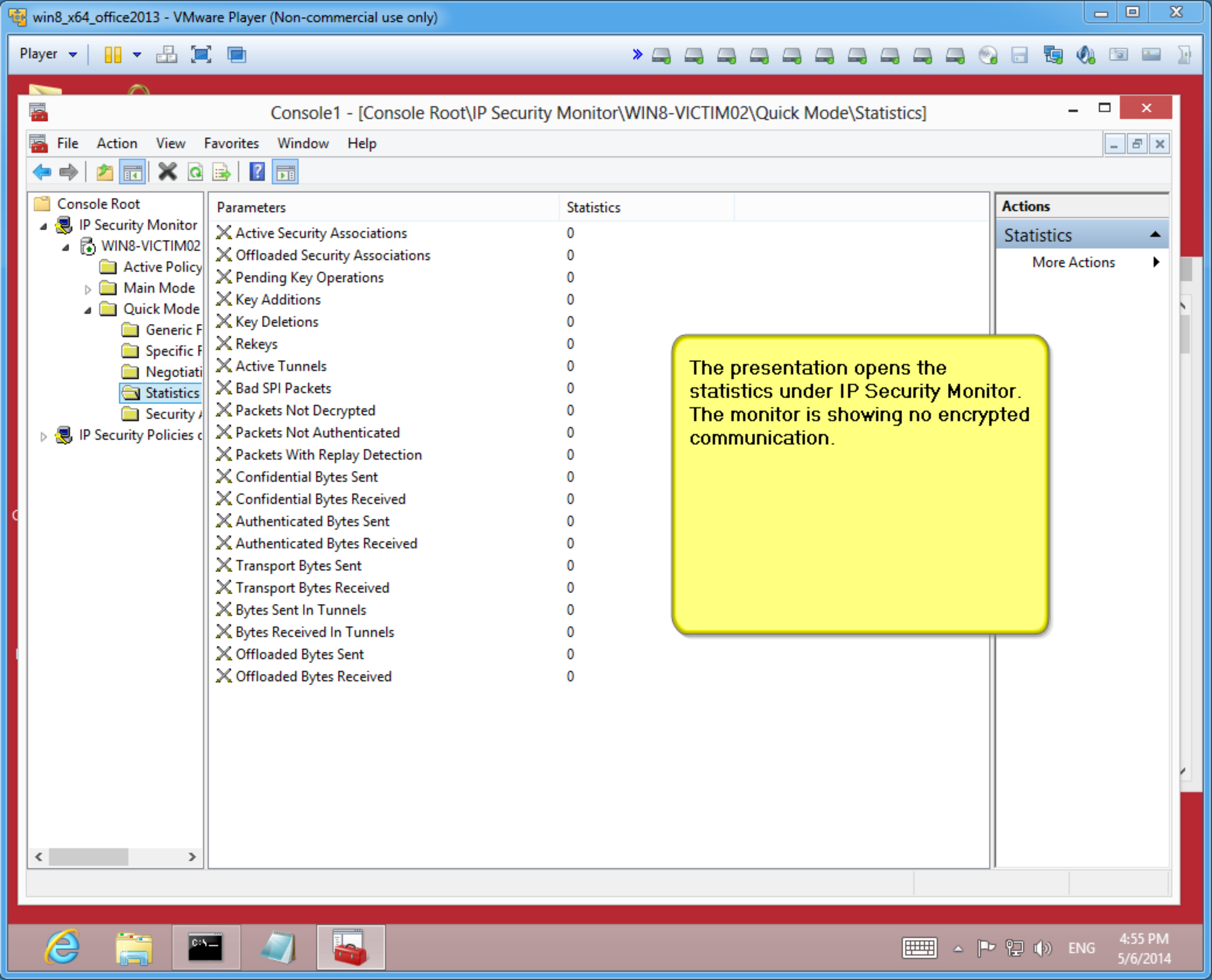
IP Security rules:

IP Filter List	Filter Action	Authentication...	Tu
☑ Windows 8 NAT 01	Windows 8 filter	Preshared Key	No
□ <Dynamic>	Default response (ea...	Kerberos	<N

☑ Use Add Wizard

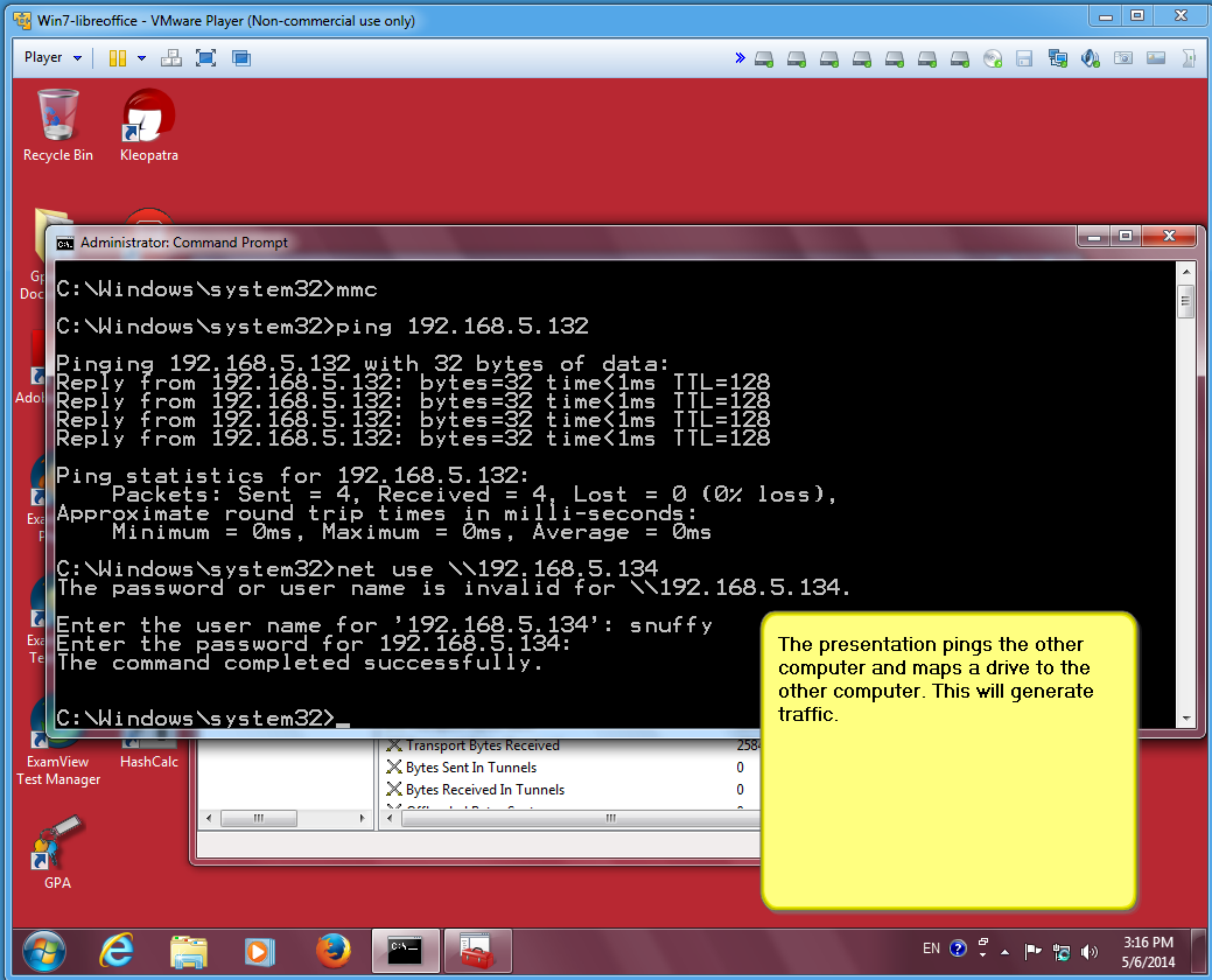


The presentation right clicks on the policy. The presentation selects Assign.



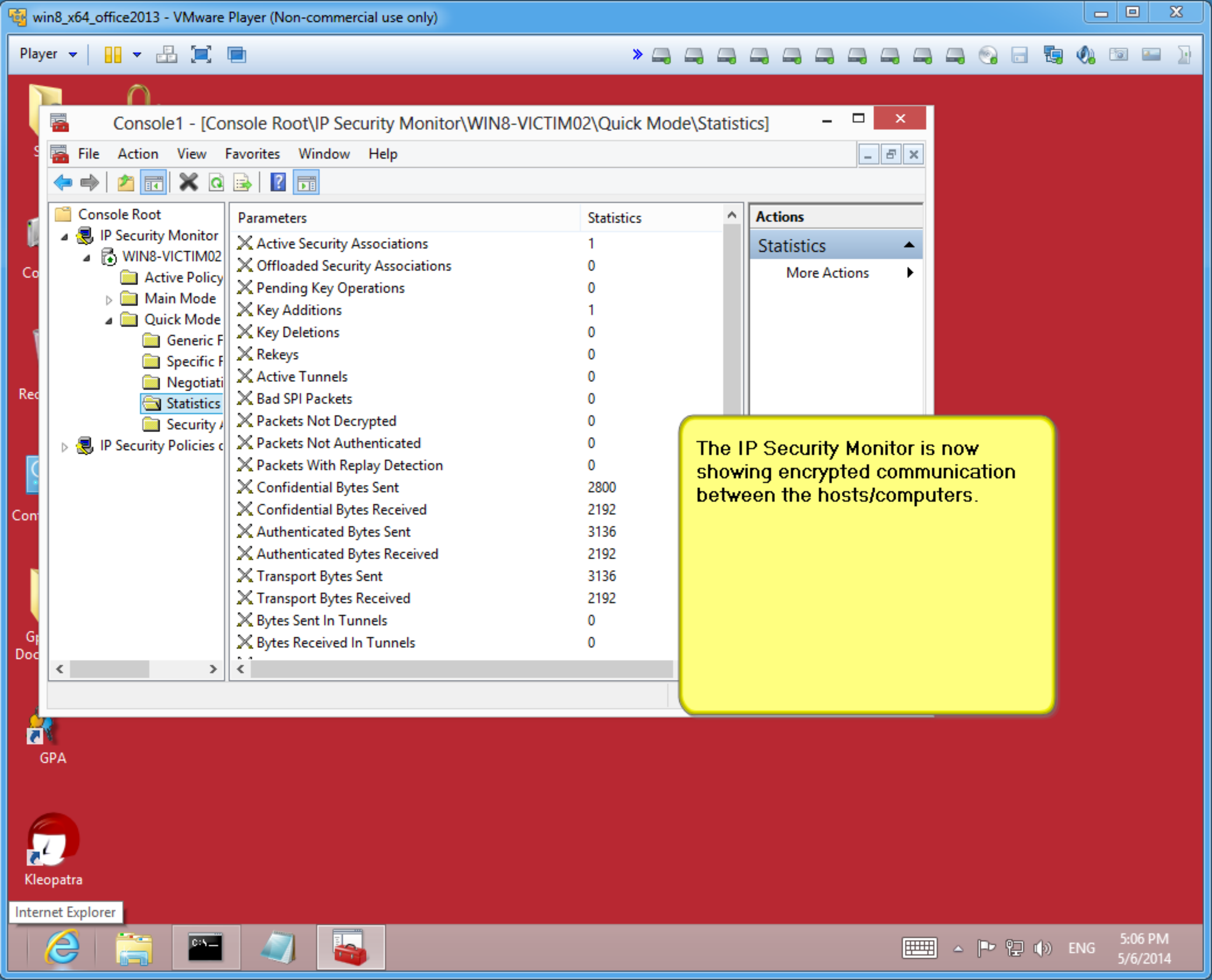
Parameters	Statistics
Active Security Associations	0
Offloaded Security Associations	0
Pending Key Operations	0
Key Additions	0
Key Deletions	0
Rekeys	0
Active Tunnels	0
Bad SPI Packets	0
Packets Not Decrypted	0
Packets Not Authenticated	0
Packets With Replay Detection	0
Confidential Bytes Sent	0
Confidential Bytes Received	0
Authenticated Bytes Sent	0
Authenticated Bytes Received	0
Transport Bytes Sent	0
Transport Bytes Received	0
Bytes Sent In Tunnels	0
Bytes Received In Tunnels	0
Offloaded Bytes Sent	0
Offloaded Bytes Received	0

The presentation opens the statistics under IP Security Monitor. The monitor is showing no encrypted communication.



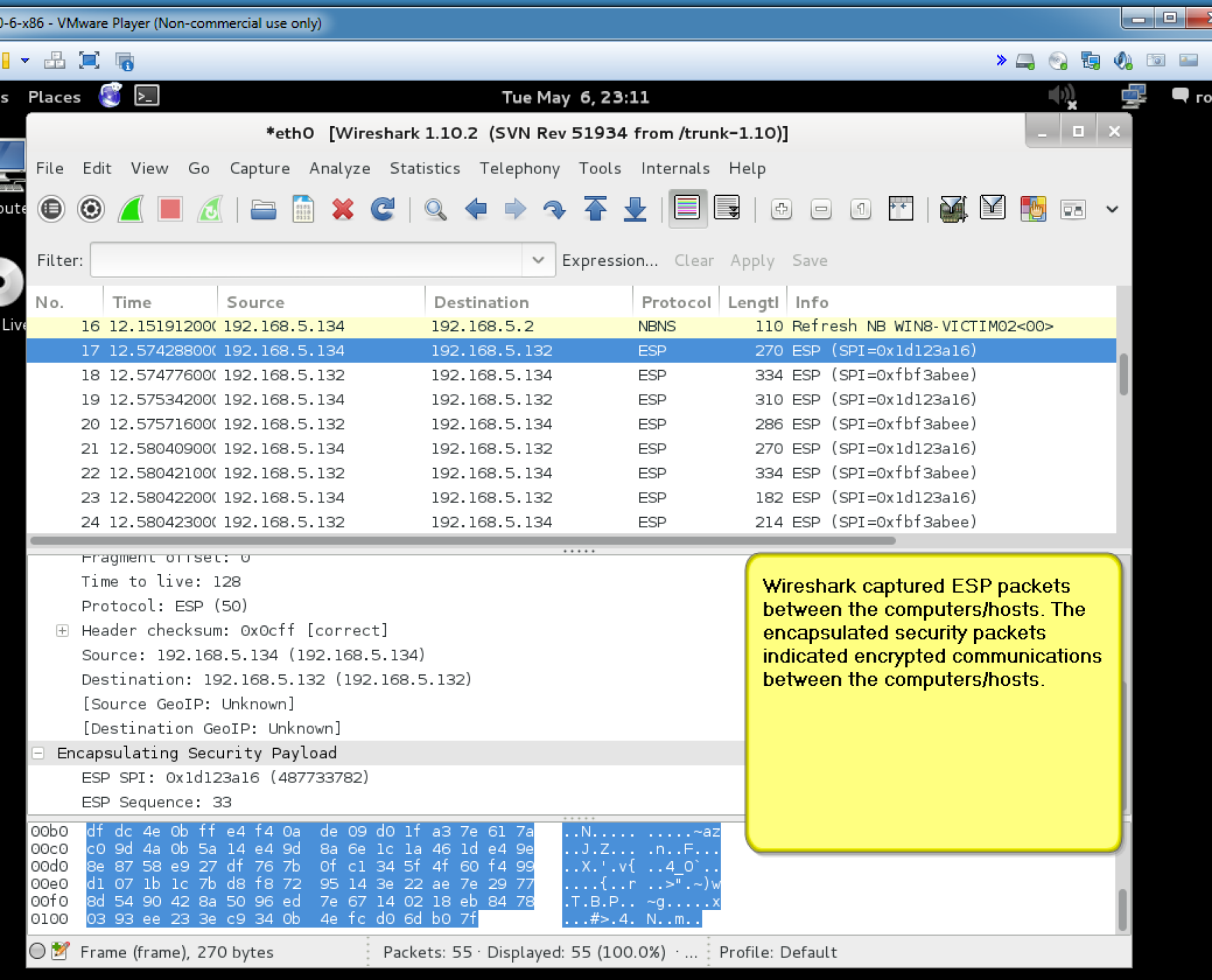
```
C:\Windows\system32>mmc

C:\Windows\system32>ping 192.168.5.132

Pinging 192.168.5.132 with 32 bytes of data:
Reply from 192.168.5.132: bytes=32 time<1ms TTL=128
Reply from 192.168.5.132: bytes=32 time<1ms TTL=128
Reply from 192.168.5.132: bytes=32 time<1ms TTL=128
Reply from 192.168.5.132: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.5.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Windows\system32>net use \\192.168.5.134
The password or user name is invalid for \\192.168.5.134.

Enter the user name for '192.168.5.134': snuffy
Enter the password for 192.168.5.134:
The command completed successfully.


C:\Windows\system32>_
```

The presentation pings the other computer and maps a drive to the other computer. This will generate traffic.



Parameters	Statistics
Active Security Associations	1
Offloaded Security Associations	0
Pending Key Operations	0
Key Additions	1
Key Deletions	0
Rekeys	0
Active Tunnels	0
Bad SPI Packets	0
Packets Not Decrypted	0
Packets Not Authenticated	0
Packets With Replay Detection	0
Confidential Bytes Sent	2800
Confidential Bytes Received	2192
Authenticated Bytes Sent	3136
Authenticated Bytes Received	2192
Transport Bytes Sent	3136
Transport Bytes Received	2192
Bytes Sent In Tunnels	0
Bytes Received In Tunnels	0

The IP Security Monitor is now showing encrypted communication between the hosts/computers.



```
No.   Time          Source           Destination      Protocol  Lengtl  Info
   16 12.15191200(  192.168.5.134    192.168.5.2      NBNS         110  Refresh NB WIN8-VICTIM02<00>
   17 12.57428800(  192.168.5.134    192.168.5.132    ESP          270  ESP (SPI=0x1d123a16)
   18 12.57477600(  192.168.5.132    192.168.5.134    ESP          334  ESP (SPI=0xfbf3abee)
   19 12.57534200(  192.168.5.134    192.168.5.132    ESP          310  ESP (SPI=0x1d123a16)
   20 12.57571600(  192.168.5.132    192.168.5.134    ESP          286  ESP (SPI=0xfbf3abee)
   21 12.58040900(  192.168.5.134    192.168.5.132    ESP          270  ESP (SPI=0x1d123a16)
   22 12.58042100(  192.168.5.132    192.168.5.134    ESP          334  ESP (SPI=0xfbf3abee)
   23 12.58042200(  192.168.5.134    192.168.5.132    ESP          182  ESP (SPI=0x1d123a16)
   24 12.58042300(  192.168.5.132    192.168.5.134    ESP          214  ESP (SPI=0xfbf3abee)
```

```
    Fragment offset: 0
    Time to live: 128
    Protocol: ESP (50)
 ⊞  Header checksum: 0x0cff [correct]
    Source: 192.168.5.134 (192.168.5.134)
    Destination: 192.168.5.132 (192.168.5.132)
    [Source GeoIP: Unknown]
    [Destination GeoIP: Unknown]
⊟ Encapsulating Security Payload
    ESP SPI: 0x1d123a16 (487733782)
    ESP Sequence: 33
```

```
00b0  df dc 4e 0b ff e4 f4 0a  de 09 d0 1f a3 7e 61 7a   ..N..... .....~az
00c0  c0 9d 4a 0b 5a 14 e4 9d  8a 6e 1c 1a 46 1d e4 9e   ..J.Z... .n..F...
00d0  8e 87 58 e9 27 df 76 7b  0f c1 34 5f 4f 60 f4 99   ..X.'.v{ ..4_O`..
00e0  d1 07 1b 1c 7b d8 f8 72  95 14 3e 22 ae 7e 29 77   ....{..r ..>".~)w
00f0  8d 54 90 42 8a 50 96 ed  7e 67 14 02 18 eb 84 78   .T.B.P.. ~g.....x
0100  03 93 ee 23 3e c9 34 0b  4e fc d0 6d b0 7f         ...#>.4. N..m..
```

Frame (frame), 270 bytes | Packets: 55 · Displayed: 55 (100.0%) · ... | Profile: Default

Wireshark captured ESP packets between the computers/hosts. The encapsulated security packets indicated encrypted communications between the computers/hosts.