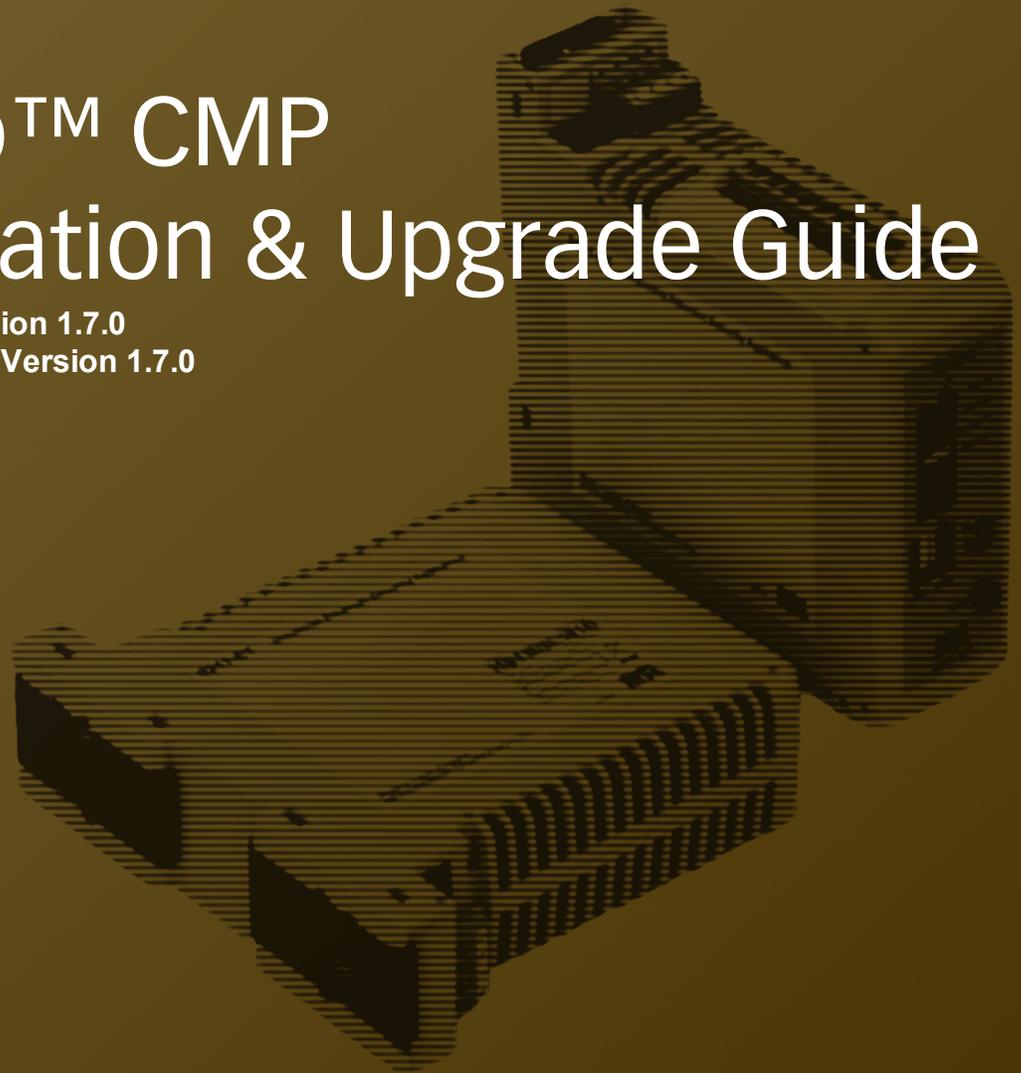


Tofino™ CMP Installation & Upgrade Guide

Tofino CMP Version 1.7.0
Tofino Firmware Version 1.7.0

March 9, 2012



TOFINO™

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Table of Contents

Overview and Warnings	1
New Installation Procedure	2
Tofino CMP Upgrade from Pre-1.5.0 Versions	5
Tofino CMP Upgrade from v1.5.0 or Newer	6
Tofino SA Upgrade from Pre-1.5.0 Versions	9
Tofino SA Upgrade from v1.5.0 or Newer	10
Upgrading Licenses	13
Appendix A: Setting Tofino SA TCP Port Numbers	14
Appendix B: Finding Your Tofino SA Version	15
Appendix C: Installing on Win 7, 2008 or Vista	18
Technical Support	20

Overview and Warnings

The Tofino Central Management Platform (CMP) is a software program that allows you to configure, manage and monitor Tofino SAs in your SCADA and process control network.

This document describes how to install or upgrade the version of the Tofino CMP 1.7.0 software on your Windows workstation or server, as well as how to upgrade the firmware on your Tofino SAs.



WARNING! If performing an upgrade, it is important that the Tofino CMP software is upgraded BEFORE the Tofino SA firmware.

Installing or Upgrading the Tofino CMP

Two installation cases are covered:

- A new installation of the Tofino CMP software on a PC which has not previously run the Tofino CMP software – please refer to the [New Installation Procedure](#). If you are running Windows Vista or Windows 7 please read [Appendix C](#).
- An upgrade installation, where an older version of the Tofino CMP is upgraded to the current shipping version – please refer to the appropriate section depending on which version you are running:

[Versions Pre-1.5.0](#)

[Version 1.5.0 or newer](#)

Upgrading Tofino SAs

Please refer to the appropriate section depending on which version* of Tofino SAs you have:

[Version Pre-1.5.0](#)

[Version 1.5.0 or newer](#)

*If you do not know which version of Tofino SAs you have, please refer to [Appendix B](#).

New Installation Procedure

This section details the procedure for installing the Tofino CMP on a computer that has never had the Tofino CMP software installed on it.

The steps for installing a new copy of the Tofino CMP are as follows:

- Run the Tofino CMP installer from the install CD.
- Obtain a Tofino CMP license along with required Loadable Security Modules (LSMs) licenses.
- Assign a license file to the new Tofino CMP.

Initial Preparation

Prior to installing your Tofino CMP software, please verify that you have the following materials ready:

- ▶ Tofino CMP Installer CD.
- ▶ License Activation Key (a 25 character string of letters and numbers such as X4QP9-RMNRQ-B59SD-AG5H6-KSFRW)

Note: Your License Activation Key is supplied by your Sales Representative. If you do not have a License Activation Key, please contact technical support.

Run the Tofino CMP Installer from the Install CD

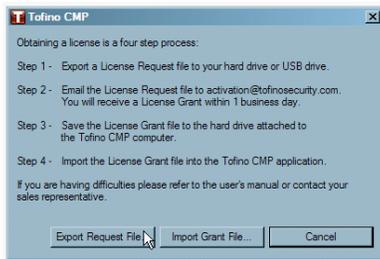
The Tofino CMP software should be installed on the desired computer:

- Place the Tofino CMP Install CD in the CD-ROM drive.
- If Autoplay is enabled on the computer, the installer will begin automatically.
- If Autoplay is not enabled, go to My Computer and double-click on the CD-ROM drive where the Tofino CMP disk is installed. If the Installer starts, proceed to the next step. If not, you will see a folder with several files including Tofino CMP Setup.exe. Double-click this file to begin the installer.
- Follow the on-screen instructions to install the Tofino CMP.

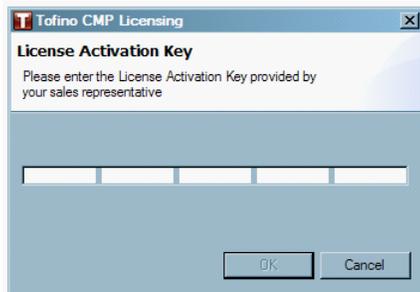
Obtaining Tofino CMP and LSM Licenses

Once the Tofino CMP has been installed on the desired computer, start the Tofino CMP.

- Ensure you possess a valid License Activation Key. These are in the form of a 25 character string of numbers and letters (for example, X4QP9-RMNRQ-B59SD-AG5H6-KSFRW) and are typically printed on a paper certificate. If you do not have a License Activation Key, please contact sales support in your area.
- An error message will appear indicating that the licensing needs to be set-up. Click "Obtain License" in order to proceed (this will allow you to obtain both the Tofino CMP license and LSM licenses you require at the same time).
- Next click "Export Request File"; this will create the License Request file you will send to activation@tofinosecurity.com in order to request and activate your Tofino CMP and LSM licenses. Please note that activation will take 1 business day.



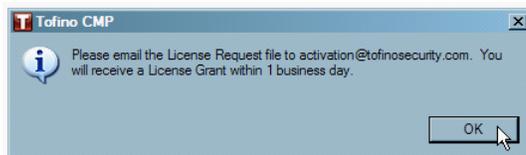
□ Next, you will be asked to enter the License Activation Key, click "OK".



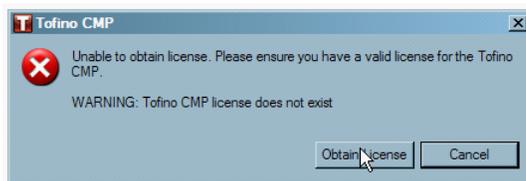
□ A Save As window will open. Type in a name for the License Request file and then click "Save". Remember that you will need to email this file, so you may want to save it to a USB storage device or a server with email access.

□ Click "OK" and then shut down the Tofino CMP.

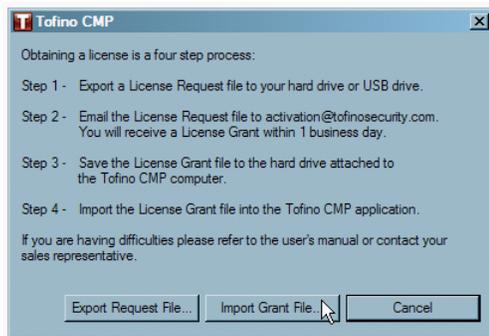
□ Now you will need to email the License Request file that you have created to activation@tofinosecurity.com, and the License Grant file will be sent back to you within one business day. If you have any questions or concerns, please contact your local sales representative or technical support.



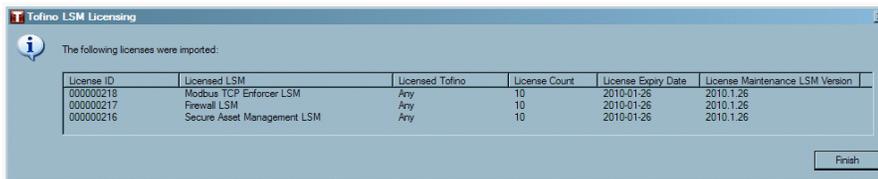
□ Once the License Grant file has been returned to you, save it to a location you will remember and then re-start the Tofino CMP, and click "Obtain License".



□ Next, click "Import Grant File..."



- A window will open. Navigate to where you have saved the License Grant file, select it, and then click "Open".
- Next you will be shown a window that summarizes the LSM licenses you have been granted. Click "Finish".



- A window will open explaining that a Tofino CMP license has been discovered and the Tofino CMP needs to be restarted. Click "OK".



- The Tofino CMP will restart, and you will be able to log into the Tofino CMP. You will be asked to change the default password which is "password". **Note:** The default user name is "admin".



- The Tofino CMP is now installed.

Tofino CMP Upgrade from Pre-1.5.0 Versions

If you are upgrading from a Tofino CMP version **before** 1.5.0, **do not proceed**. Instead please contact Byres Security Inc by emailing support@tofinosecurity.com

Tofino CMP Upgrade from v1.5.0 or Newer



WARNING! If the Tofino SA contains a VPN Client or VPN Server LSM, the Tofino SA must be put into Test mode for the duration of the upgrade. Failing to do this will require the Tofino SA to be factory reset by cycling power. Once the upgrade is complete the Tofino SA can be put back into Operational mode. Also note that the upgrade of the VPN LSMs may take up to 5 minutes to complete.

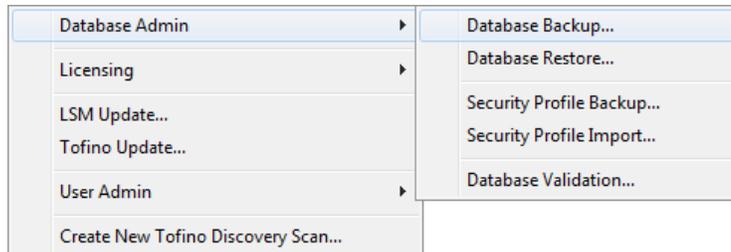
This section details the procedure for upgrading the Tofino CMP from version 1.5.0 or newer to Tofino CMP v1.7.0. **If your existing version of Tofino CMP is not 1.5.0 or newer do not proceed.**

The steps for updating the Tofino CMP are as follows:

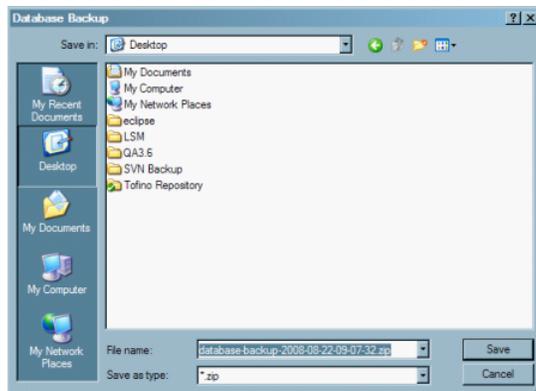
- Back up your Tofino CMP database
- Run the Tofino CMP 1.7.0-r9999 Installer CD
- Restore your database to your Tofino CMP if needed
- Upgrade your Security Profile feature.

Backup Your Tofino CMP Database

- Back up the current Tofino database to a directory on your Tofino CMP computer by selecting the menu item **Tools > Database Admin > Database Backup...**



- Choose a location to save the backup copy and remember the location of this file.



- Close the Tofino CMP

Run the Tofino CMP Installer from the Install CD

The Tofino CMP software should be installed on the desired computer:

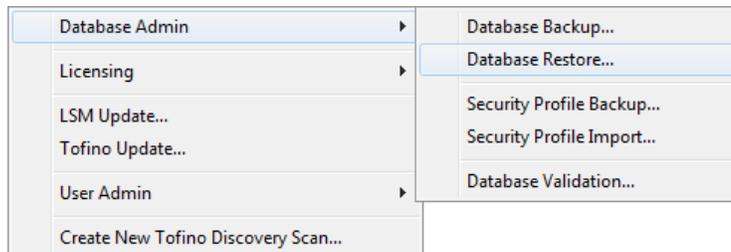
- Place the Tofino CMP Version 1.7.0 Install CD in the CD-ROM drive.
- If Autoplay is enabled on the computer, the installer will begin automatically.
- If Autoplay is not enabled, go to My Computer and double-click on the CD-ROM drive where the Tofino CMP disk is installed. If the Installer starts, proceed to the next step. If not, you will see a folder with several files including Tofino CMP Setup v1.7.0-r9999.exe. Double-click this file to begin the installer.
- Follow the on-screen instructions to install the Tofino CMP.

Check the Version of the Tofino CMP

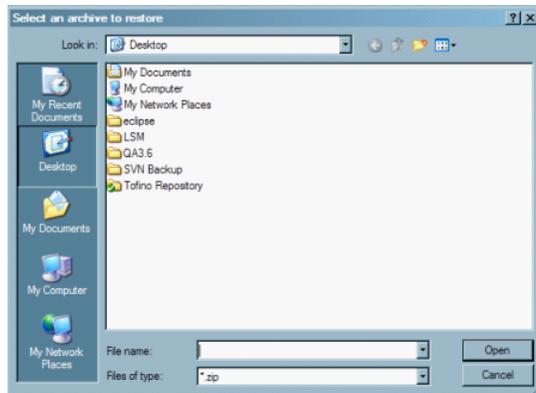
- Launch the Tofino CMP as you normally would, and log-in.
- Go to the Help menu and select About. The version should be 1.7.0. If your Tofino CMP is NOT at this version, contact technical support: support@tofinosecurity.com

Restore Your Database if Needed

- Check to see if your network diagram is accurate. If it is accurate, there is no need to restore your database. If it is not accurate please restore the database you saved at the beginning of this procedure.
- To restore your old database, select **Tools > Database Admin > Database Restore...**



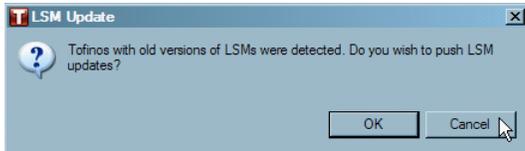
- Click "OK".
- Navigate to the location of your old database file and select it.



- Click "OK". The Tofino CMP will now restart.



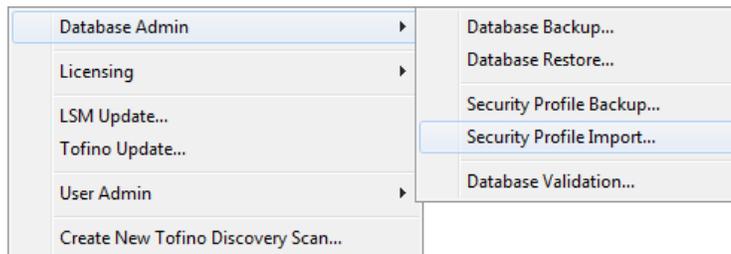
- A dialog may open saying "Tofinos with old versions of LSMs were detected. Do you wish to push Tofino updates?" Click "Cancel". If the dialog does not appear, continue on to the next step.



Import the Latest Security Profile Database

Version 1.7.0 offers a new Security Profile feature which allows you to import and merge the latest Tofino protocol definitions, device definitions, and Special Rules into your existing database.

- To import the Security Profile version 1.7.0 select **Tools > Database Admin > Security Profile Import...**



- Navigate to and select the Security Profile security-profile-1.7.0-r9999.tsp located at C:\Program Files\Tofino CMP.
- This will upgrade your Security Profile, including Protocols, Special Rules and Devices.
- Click "OK". The Tofino CMP will now restart. **Note:** The password window, asking you to enter a new password different from the default password may appear.
- A dialog may open saying "Tofinos with old versions of LSMs were detected. Do you wish to push Tofino updates?" Click "Cancel".

Note: Now that the Tofino CMP is upgraded to version 1.7.0 we strongly recommend that you update the Tofino Security Appliance(s) to version 1.7.0 as soon as possible. The 1.7.0 Tofino CMP will manage older Tofino SAs but some functionality may be limited.

See: [Tofino SA Upgrade Procedure from Version 1.5.0 or Newer](#)

Tofino SA Upgrade from Pre-1.5.0 Versions

If you are upgrading from a version **before** 1.5.0, **do not proceed**. Instead please contact Byres Security Inc by emailing support@tofinosecurity.com

Tofino SA Upgrade from v1.5.0 or Newer

This section outlines the steps for upgrading the Tofino SA firmware from version 1.5.0 or newer to version 1.7.0



WARNING! The Tofino CMP software must be upgraded **BEFORE** the Tofino SA firmware. See: [Tofino CMP Upgrade from v1.5.0 or Newer](#)



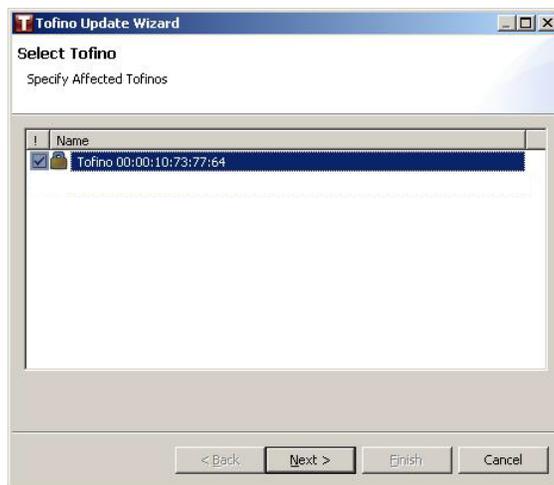
WARNING! If the Tofino SA contains a VPN Client or VPN Server LSM, the Tofino SA must be put into Test mode for the duration of the upgrade. Failing to do this will require the Tofino SA to be factory reset by cycling power. Once the upgrade is complete the Tofino SA can be put back into Operational mode. Also note that the upgrade of the VPN LSMs may take up to 5 minutes to complete.



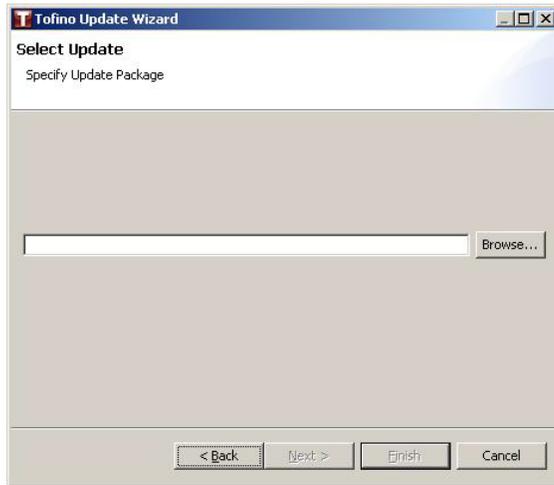
The Tofino SA update to version 1.7.0 is a **Level Five Update**. There will be some "packet loss" for up to 60 seconds. The update may take up to 5 minutes to complete.

Upgrading your Tofino SAs to version 1.7.0

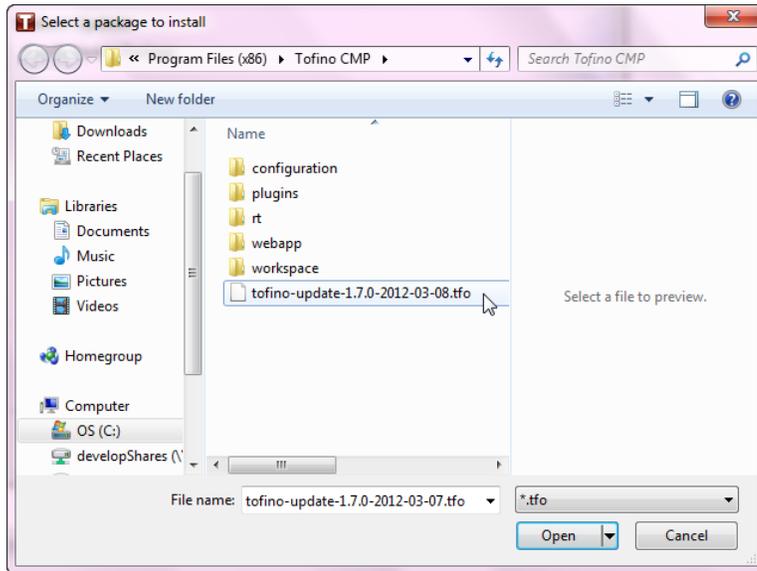
- Ensure the Tofino CMP software has been upgraded to 1.7.0.
- The Tofino SA firmware is updated using the "Tofino Update" command in the Tofino CMP software.
- Start the Tofino CMP application and log in. Confirm that you are running Tofino CMP version 1.7.0 or later.
- Start a Tofino SA update by clicking **Tools > Tofino Update** to bring up the Tofino Selection dialog. Check the box of the Tofino SA that you would like to update and then click "Next".



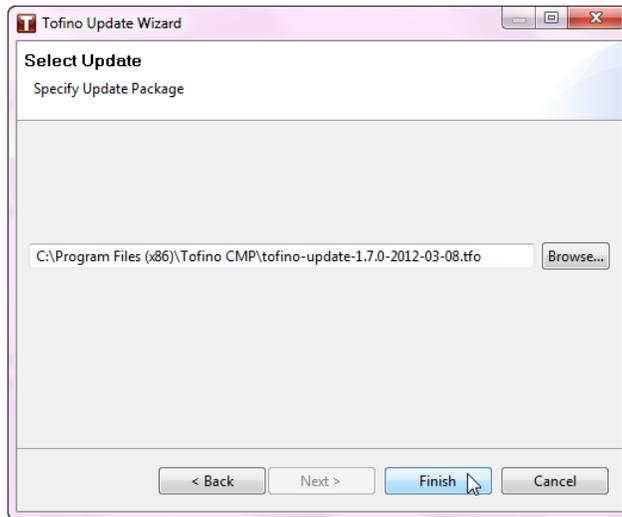
- Click on the "Browse" button to search for the .tfo file provided.



- Select the .tfo file (tofino-update-1.7.0-2012-03-08.tfo usually found at C:\Program Files\Tofino CMP) and click "Open".

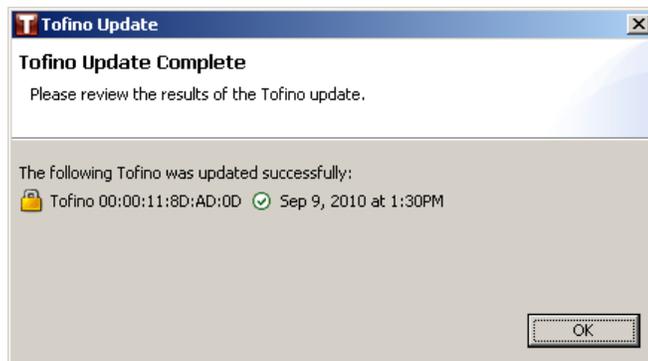


- Click "Finish" to update the Tofino SA with the latest .tfo file.



An Update window will open warning that this is an **Effect Level 4 Update**. Click "Yes" to proceed with the update.

A progress dialogue will appear and will run until the update has been completed.



Confirm that Tofino SA is now updated to version 1.7.0 by following the steps outlined in Appendix B.

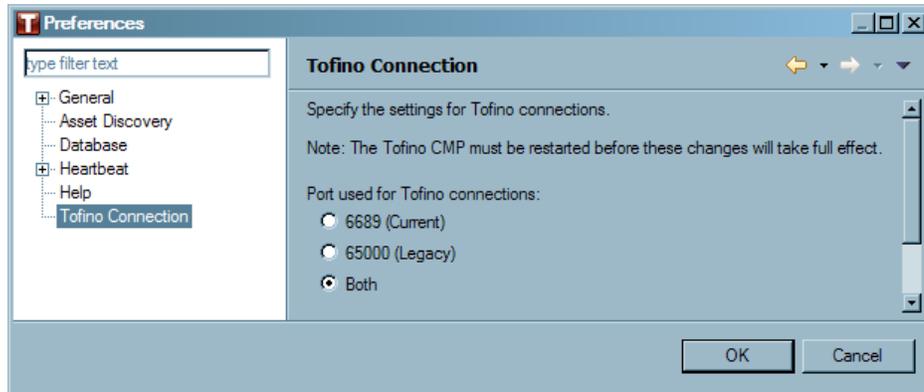
Upgrading Licenses

License upgrades should **not** be required to upgrade to version 1.7.0.

To upgrade the Tofino CMP or LSM licenses for other reasons, follow these steps:

- Have your new License Activation Key ready.
- If this is a case where the Tofino CMP is going to be upgraded, upgrade your Tofino CMP as per the upgrade procedure found in this manual.
- Open the Tofino CMP and select Tools > Licensing > Export Request File...
- Enter your License Activation Key and click OK.
- Name your request file and save it to a location that is accessible for emailing.
- Email the request file to activation@tofinosecurity.com
- Once the License Grant file has been returned to you, save it to a location you will remember and then re-start the Tofino CMP, and click *Obtain License* and then *Import Grant File...* If this dialog does not appear, once the Tofino CMP has opened, select Tools > Licensing > Import Request File...
- You now have upgraded licenses.

Appendix A: Setting Tofino SA TCP Port Numbers



The Tofino SA now has its own IANA assigned TCP and UDP port number - 6689. The default setting is to currently use both the legacy port number (65000) as well as the newly assigned port number (6689) in order to simultaneously support both legacy and current Tofino SAs.

With the default settings in place the Tofino CMP runs more slowly because it will attempt to use both the new port number and the legacy port number when it connects to a Tofino SA. For better performance it is important to change over to the new port number (6689). **Please remember you will also have to change the rules on any external firewalls that Tofino CMP traffic must pass through to allow this new port number.**

To change over to the new port number, simply click the port number 6689 in the Tofino CMP Preferences (Windows > CMP Preferences) and then click OK. The Tofino CMP will then need to be re-started in order for these changes to take effect.

Appendix B: Finding Your Tofino SA Version

See: [Tofino 100](#)

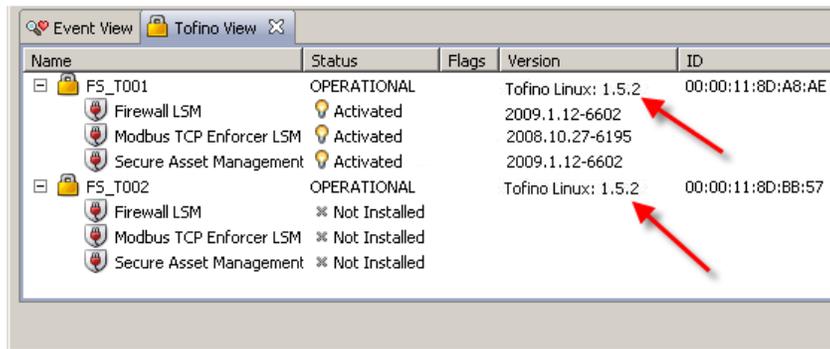
See: [Tofino 220](#)

Tofino 100

If you do not know which version of Tofino SAs you have, there are two ways to find out:

- ▶ Using the Tofino View in the Tofino CMP (generally top left hand corner of the screen).
- ▶ Performing a USB Save on your Tofino SA.

Tofino View



Name	Status	Flags	Version	ID
FS_T001	OPERATIONAL		Tofino Linux: 1.5.2	00:00:11:8D:A8:AE
Firewall LSM	Activated		2009.1.12-6602	
Modbus TCP Enforcer LSM	Activated		2008.10.27-6195	
Secure Asset Management	Activated		2009.1.12-6602	
FS_T002	OPERATIONAL		Tofino Linux: 1.5.2	00:00:11:8D:BB:57
Firewall LSM	Not Installed			
Modbus TCP Enforcer LSM	Not Installed			
Secure Asset Management	Not Installed			

USB Save

The USB Save function copies diagnostic files from the Tofino SA to the USB storage device. From these files you will be able to find out which version your Tofino SAs are at .

- Insert a USB storage device into one of the USB ports.
- Press and hold the Config button for 1-2 (but less than 5) seconds.
- The Fault-Event-Mode LEDs will begin to flash, in downward sequence, to indicate a "Save."
- When the flashing sequence stops remove the USB storage device.
- If the save was successful the Tofino SA LEDs will revert to the state they were in prior to the saving action.

The file name ending in .txt should be opened in WordPad and the following will be displayed, including the version number of the Tofino SA.

Note: In versions earlier than 1.5.2 you will need to open the 'unenc_diags' file in WordPad.

```
=====
Tofino Version information:
  Tofino Firmware version: Tofino Linux: 1.5.2
Tofino Hardware Info:
  Hardware : Arcom VULCAN
  Processor : XScale-IXP42x Family rev 2 (v5b)
  Flash Type: P-Flash
  Tofino ID: 00:00:11:8D:A8:AE
=====
```

Network Statistics

```
unsecured IF ifconfig
eth0  Link encap:Ethernet HWaddr 00:80:66:04:64:E8
inet6 addr: fe80::280:66ff:fe04:64e8/64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:7478 errors:0 dropped:0 overruns:0 frame:0
TX packets:6930 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:100
RX-frames: 6930 (100%) TX-frames: 7478 (100%)
```

Tofino 220

If you do not know which version of Tofino SAs you have, there are two ways to find out:

- ▶ Using the Tofino View in the Tofino CMP (generally top left hand corner of the screen).
- ▶ Performing a USB Save on your Tofino SA.

Tofino View

Name	Status	Type	Flags	Version	ID
Eagle20 Tofino 00:80:63:78:44:C9	PASSIVE	Hirschmann Eagle 20 Tofino TX/MM		Tofino Linux: 1.5.2	00:80:63:78:44:C9
Event Logger LSM	Activated			2010.4.12-8803	
Firewall LSM	Activated			2010.3.31-8757	
Modbus TCP Enforcer LSM	Activated			2010.4.15-8815	
OPC Classic Enforcer LSM	Not Installed				
Secure Asset Management LSM	Activated			2010.4.12-8803	
VPN Client LSM	Not Installed				
VPN Server LSM	Not Installed				
Eagle20 Tofino 00:80:63:95:EF:9C	PASSIVE	Hirschmann Eagle 20 Tofino TX/TX		Tofino Linux: 1.5.1	00:80:63:95:EF:9C
Event Logger LSM	Activated			2009.8.5-7944	
Firewall LSM	Activated			2009.9.1-8134	
Modbus TCP Enforcer LSM	Activated			2009.9.1-8129	
OPC Classic Enforcer LSM	Not Installed				
Secure Asset Management LSM	Activated			2009.9.1-8131	
VPN Client LSM	Not Installed				
VPN Server LSM	Not Installed				

USB Save

The USB Save function copies diagnostic files from the Tofino SA to the USB storage device.

To save diagnostic information from the Tofino SA to a USB storage device, proceed as follows:

- Press the SLR button 1 time.
- The LED  glows.

- The USB Save begins after 5 seconds.
- The LEDs  /S,  /L and V.24/R flash in a sequence of left to right indicating a USB Save is in progress.
- After the USB Save has completed, all LEDs will return to their previous state.

The file name ending in .txt should be opened in WordPad and the following will be displayed, including the version number of the Tofino SA.

```
=====
Tofino Version information:
  Tofino Firmware version: Tofino Linux: 1.5.2
Tofino Hardware Info:
  Hardware : Hirschmann EAGLE20 Development Platform
  Processor : XScale-IXP42x Family rev 2 (v5b)
  Flash Type: P-Flash
  Tofino ID: 00:80:63:95:EF:B1
=====

Network Statistics
  unsecured IF ifconfig
eth0      Link encap:Ethernet HWaddr 00:80:63:95:EF:B1
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:953 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:100
          RX bytes:83690 (81.7 KiB) TX bytes:0 (0.0 B)
```

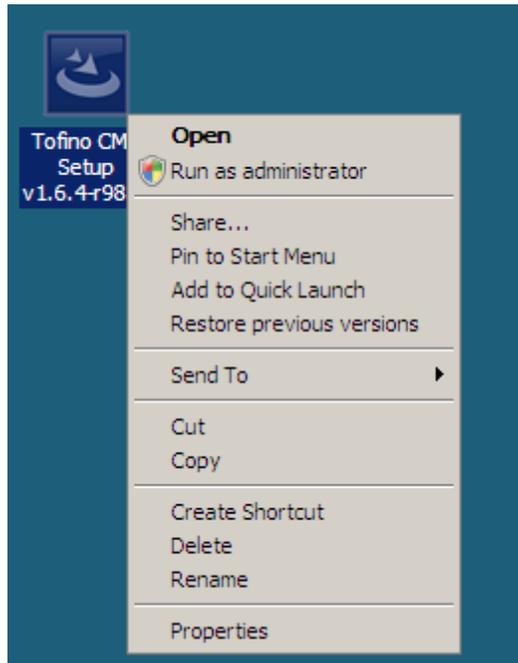
Appendix C: Installing on Win 7, 2008 or Vista

If you are running Windows 2008, Windows Vista or Windows 7, you must install the Tofino CMP and activate licenses using Administrative access. Once the Tofino CMP has been installed and licensed, it can be managed using regular user access. The Tofino CMP also allows multiple user accounts with differing privileges to operate a single installation. The instructions below outline how to do this.

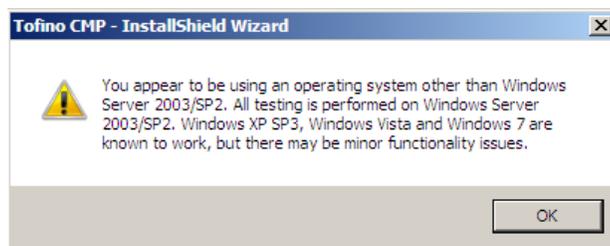
Installation

To install the Tofino CMP as an Administrator follow these steps:

- Right click on the Tofino CMP Setup v1.7.0-r9999.exe file and select "Run as administrator", or install the Tofino CMP from the administrator account. Note: It is recommended that the Tofino CMP be installed from the account that will be used to run the Tofino CMP.

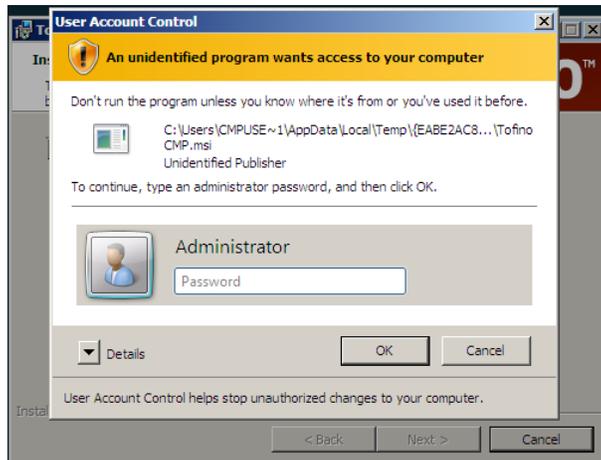


- Click "Ok" to continue installing.



- Click "Ok" to continue installing.

- Step through the installation process, entering your User Name and Organization when prompted.
- If a user other than the account installing the Tofino CMP will need to access the Tofino CMP, then under "Install this application for:" select "Anyone who uses this computer (all users)"
- Select the "Complete" setup type then click "Next"
- If a UAC prompt appears, select "OK" to allow the installation..



First Run

- The first time running the Tofino CMP must be done using Administrator privileges (from the administrator account or using "Run as Administrator")
- After the request file has been generated and the grant file has been imported, you no longer have to run the Tofino CMP using Administrative privileges. See: New Installation Procedure

Regular Use

- After the Tofino CMP has been installed and run once, any user will be able to run the Tofino CMP without administrative privileges provided that the Tofino CMP was installed for all users.

Troubleshooting Account Access

If the Tofino CMP indicates eclipse errors when running non-administrator accounts, these accounts may have insufficient privileges for key folders. To address this:

- Using Windows Explorer navigate to the folder where the Tofino CMP is installed (typically C:\Program Files (x86)\Tofino CMP\) and right click on the folder to open Properties.
- Using the Security Tab, set the folder permissions to "Write" for any non-administrator users or group you wish to allow access to the Tofino CMP.
- The Tofino CMP now can be managed using regular user (i.e. non-administrator) access.

Technical Support

If you experience a problem while upgrading your Tofino system and need assistance (or have suggestions for improvement), please send an email to:

support@tofinosecurity.com

To ensure the best possible attention, please indicate in the subject line of your email if the problem is "Urgent", "Normal" or "Information". The latter can be used to report an observed issue that is not causing difficulty, but you think we should be aware of.

You will receive an auto-reply message from our tracking system, which will include a tracking reference number. For all other correspondence regarding that particular issue, please reply to that message as this helps us manage the resolution of your issue.

The technical staff are automatically informed of any mail sent to the above email address so there is no need to send copies to technical contacts within either organization.

We can help you more easily if you provide the following information:

- ▶ Your contact details: Under normal circumstances, we will attempt to contact you via the email address you used when reporting the issue, but if you need to be contacted by other means, we will need those details.
- ▶ The version of your Tofino CMP: To locate this information, start the Tofino CMP software, log in and select the menu item Help > About to view the version number.
- ▶ A description of the issue you are reporting: Please try to be as specific as possible and include details of any testing you have carried out to diagnose or eliminate any problems. Please indicate what network protocols you are using, if you have used them before without difficulty, if the system has ever worked and if so, what are you aware has changed.
- ▶ A description of the network environment in which the Tofino is being deployed: This includes the hardware involved, relevant IP addresses and subnet masks.
- ▶ A backup copy of your Tofino database.

We thank you for your support and interest.