Installation Steps for Virtual Wire Mode Evaluation

Thank you for choosing to evaluate a Palo Alto Networks firewall. The steps below explain how to install and configure the firewall in your network. Feel free to call your Sales Engineer for assistance during your installation and evaluation.

Preparation steps

- Determine where in the network you will be inserting the Palo Alto Networks device. One common location is between the gateway firewall and the internal switch. In virtual wire mode, the Palo Alto Networks device acts as a "bump on the wire", so there is no need to re-address your network.

- Determine what IP address you'll be assigning to the firewall's management port. This IP will need Internet access to download the latest OS and licenses.

Part 1: Configuring the Management Port

1. Power on the Palo Alto Networks firewall. Connect via the console cable (9600-8-N-1). Login using the defaults:

   Username: **admin**
   Password: **admin**

2. You will receive a message that the system is initializing. It may take a few minutes for the device to initialize. You can monitor the status of the startup using the CLI command **show jobs processed**. When the output of that command shows a status of FIN, the device has completed its boot sequence.

```
admin@PA-2020> show jobs processed

Enqueued           ID     Type Status Result Completed
------------------------------------------------------------
02:52:14            1  AutoCom    ACT   PEND        50%

admin@PA-2020>
admin@PA-2020> show jobs processed

Enqueued           ID     Type Status Result Completed
------------------------------------------------------------
02:52:14            1  AutoCom    FIN     OK 02:53:20
```

Do not proceed until the device has completely initialized.

3. You will now configure the management interface of the Palo Alto Networks firewall. Fill in the following information:

   Mgmt interface IP: _____

   Mgmt interface mask: _____

   Mgmt interface gateway: _____

   Mgmt interface DNS server: _____

4. From the console, execute the commands below. Make sure to replace the variables with the information you recorded in the previous step.

   configure
   set deviceconfig system ip-address *x.x.x.x* netmask *y.y.y.y* default-gateway *z.z.z.z* dns-primary *v.v.v.v*
   commit
   exit

   Here is an example of these commands.

```
admin@PA-4020> configure
Entering configuration mode
[edit]
admin@PA-4020# set deviceconfig system ip-address 1.1.1.12 netmask 255.255.255.0
 default-gateway 1.1.1.254 dns-primary 4.2.2.2

[edit]
admin@PA-4020# commit


.................10%.....20%.....30%.....40%.....50%.....60%.....70%.....80%.....
90%.....100%
Configuration committed successfully

[edit]
admin@PA-4020#
```

5. Attach the firewall's management port to your network. The management port must be cabled to a switch port that is set to **auto-detect all settings**.

6. To test connectivity, ping from the firewall to a device on your network, for example, ping to your default gateway (z.z.z.z)

   ping host *z.z.z.z*

   Press control-C to end the pings. Here is an example:

```
admin@PA-2020> ping host 1.1.1.254
PING 1.1.1.254 (1.1.1.254) 56(84) bytes of data.
64 bytes from 1.1.1.254: icmp_seq=1 ttl=64 time=2.98 ms
64 bytes from 1.1.1.254: icmp_seq=2 ttl=64 time=1.44 ms
64 bytes from 1.1.1.254: icmp_seq=3 ttl=64 time=1.41 ms
64 bytes from 1.1.1.254: icmp_seq=4 ttl=64 time=1.51 ms
64 bytes from 1.1.1.254: icmp_seq=5 ttl=64 time=1.45 ms
64 bytes from 1.1.1.254: icmp_seq=6 ttl=64 time=1.47 ms

--- 1.1.1.254 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 4999ms
rtt min/avg/max/mdev = 1.413/1.714/2.982/0.567 ms
```

You should test network connectivity to the DNS server, as well as to the Internet. (Note that the firewall must have Internet access so that it can download licenses and the latest OS.) Do not proceed until you have the proper connectivity.

Part 2: Installing Licenses and Updating Software

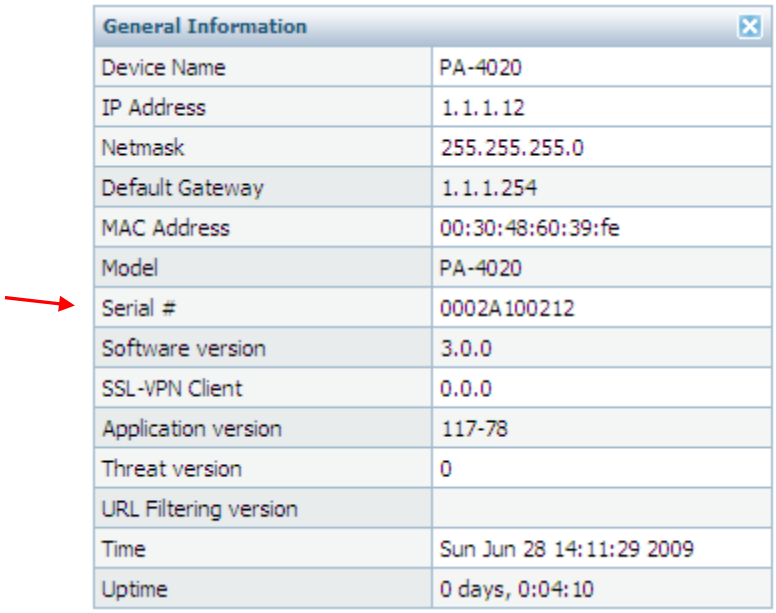
7. You will use the web user interface of the firewall to for the remainder of the configuration. On the management workstation, open a browser to the IP address of your management interface. Make sure to use SSL to connect to the firewall (https://) You will see a certificate warning—that is ok, continue to the web page. You will be prompted with a login screen. Login to the firewall with the same username and password as via the console.

8. Once logged in, the home screen will appear. You will use the tabs across the top, and the menus in the left column, to configure the device.

   Note: If you have connectivity problems with the UI, make sure that the switch port that is physically cabled to the management port is set to "auto".

9. Configure a more secure administrator password using **Device** -> **Administrators**. Make sure to write down this new password.

10. You must register your product in order to download your eval licenses. Go to https://support.paloaltonetworks.com. In the bottom left corner, click **Register**. Enter in the appropriate information to create a login account. Also enter your serial number on that page. You can find your device's serial number in the bottom right corner of the initial firewall logon page.

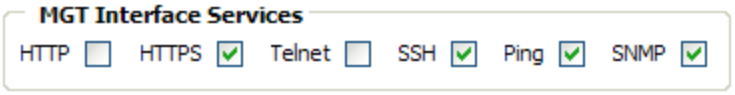


General Information	
Device Name	PA-4020
IP Address	1.1.1.12
Netmask	255.255.255.0
Default Gateway	1.1.1.254
MAC Address	00:30:48:60:39:fe
Model	PA-4020
Serial #	0002A100212
Software version	3.0.0
SSL-VPN Client	0.0.0
Application version	117-78
Threat version	0
URL Filtering version	
Time	Sun Jun 28 14:11:29 2009
Uptime	0 days, 0:04:10

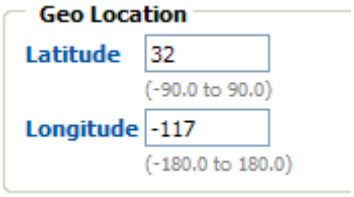
11. To set the time and date of your device, go to the **Device** tab -> **Setup** menu. In the right column, towards the bottom, click on **Set Time**. Enter an accurate date and time.

12. While still on the Device -> Setup screen, in the left column at the top, click on **Edit**. On this screen you can do the following:

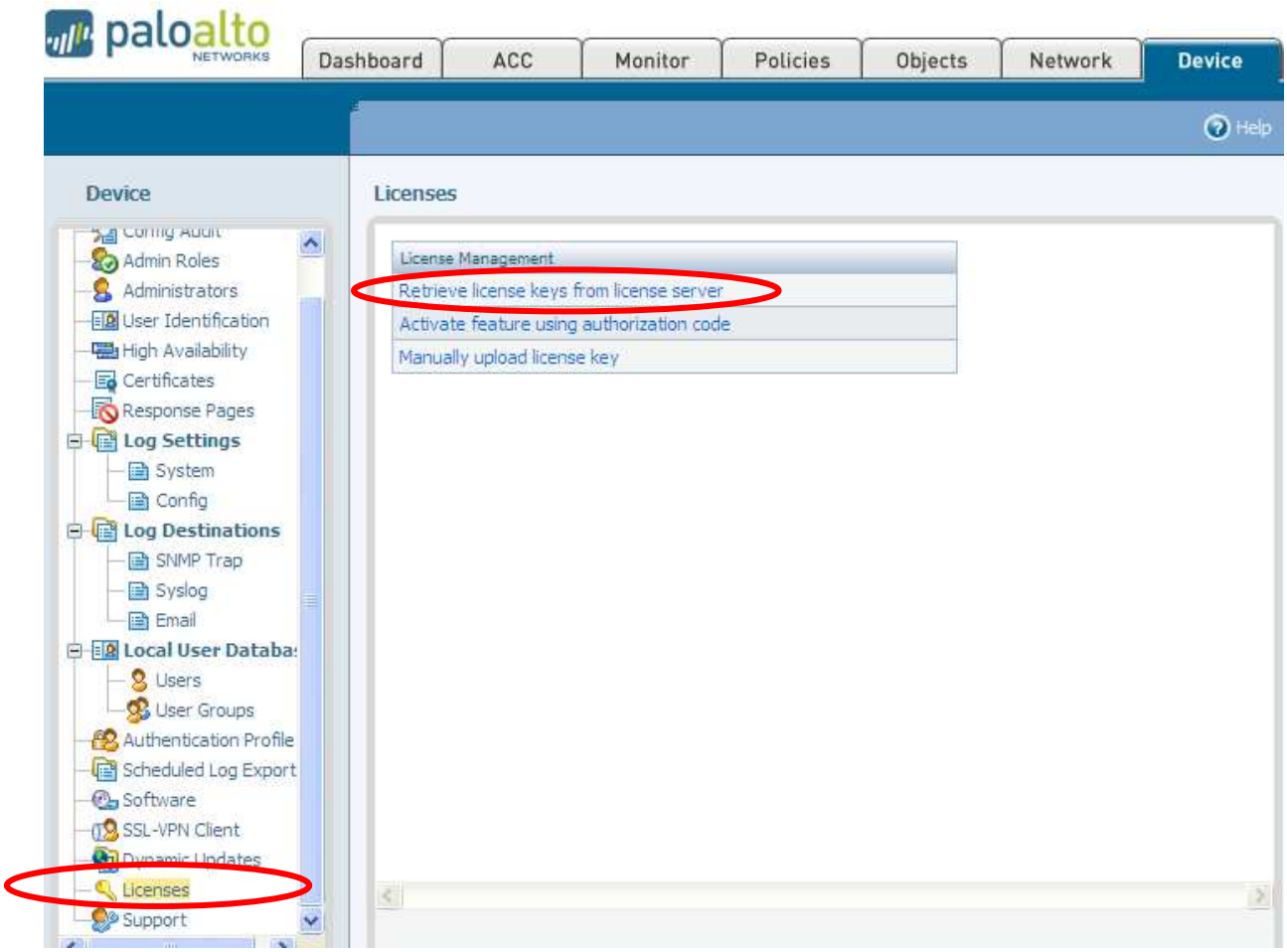
    - Change the timezone.
    - Enter the NTP server information.
    - Configure the services that you want the MGT interface to respond to.



- Under Geo Location, enter the latitude and longitude of your location. This will place the graphic for your firewall in the proper location on the world map. The example below is appropriate for San Diego, CA:



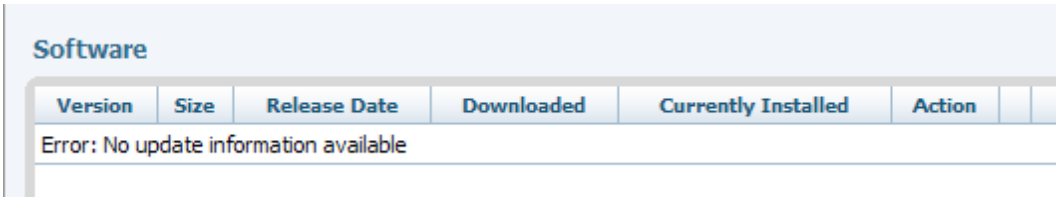
13. Now you will download your licenses from the license server. Since you entered both a default gateway and DNS server IP address via the console, the firewall will be able to download the licenses via the management port. On the tabs across the top, select **Device**. On the menu on the left, select **Licenses**. The screen below will appear.



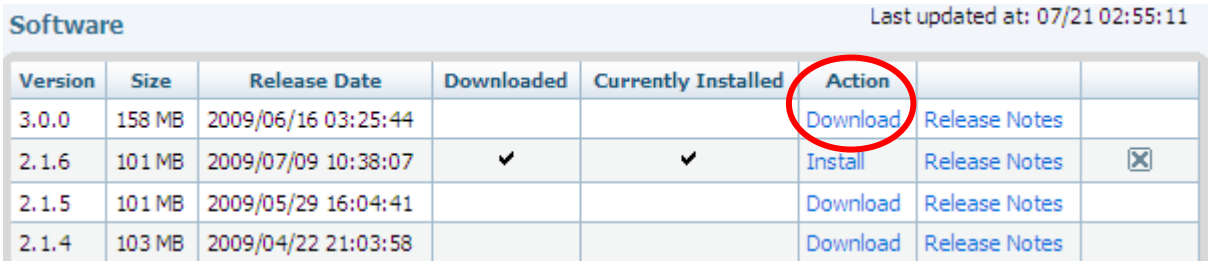
14. Select **Retrieve license keys from license server**. Assuming the firewall can reach the Palo Alto Networks license server on the Internet, the licenses will be downloaded and installed for the features that you requested to evaluate.

15. At this point, you will commit your config. In the top-right corner of the browser window, click on **Commit**. This configuration will be saved to the firewall's hard drive as well as to the running config.

16. Next, you will make sure you are running the appropriate version of PANOS. Go the **Device** tab -> **Software** menu. You will see the following:

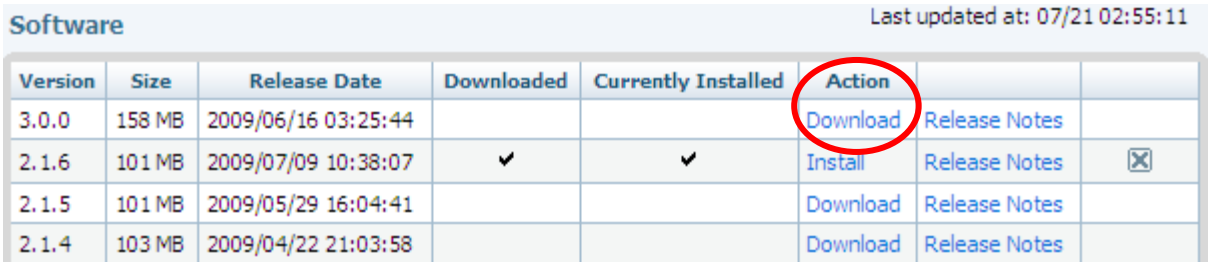


17. On the bottom of the screen, click on the **Refresh** button. The list of the latest versions of PANOS will be retrieved. Your screen will be similar to the one shown here:



18. Select the version of PANOS software that your SE recommends you install, and click **Download**.

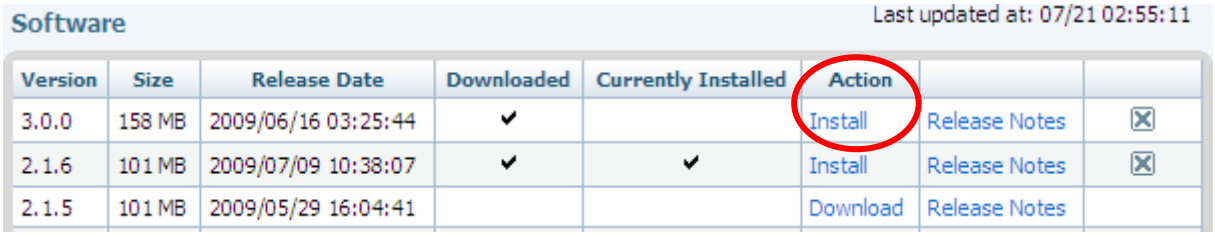
    Note that PANOS 3.0.0 requires that the device be running 2.1.5 or higher. If the device is NOT at 2.1.5+ and you try to download PANOS 3.0.0, you will get a cryptic error message.



Software — Last updated at: 07/21 02:55:11

Version	Size	Release Date	Downloaded	Currently Installed	Action		
3.0.0	158 MB	2009/06/16 03:25:44			Download	Release Notes	
2.1.6	101 MB	2009/07/09 10:38:07	✔	✔	Install	Release Notes	☒
2.1.5	101 MB	2009/05/29 16:04:41			Download	Release Notes	
2.1.4	103 MB	2009/04/22 21:03:58			Download	Release Notes	

19. Once downloaded, you will see the screen below.

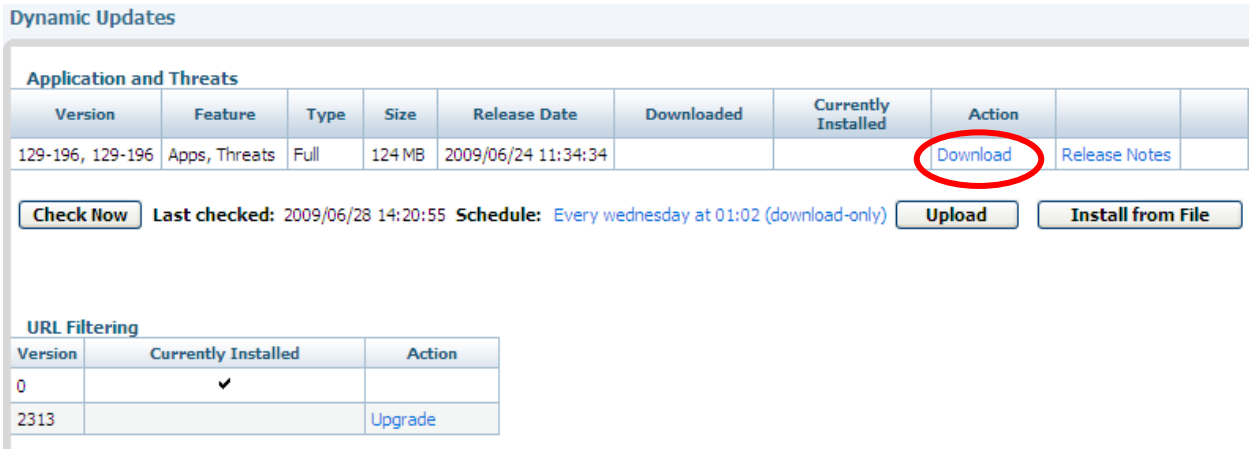


Software — Last updated at: 07/21 02:55:11

Version	Size	Release Date	Downloaded	Currently Installed	Action		
3.0.0	158 MB	2009/06/16 03:25:44	✔		Install	Release Notes	☒
2.1.6	101 MB	2009/07/09 10:38:07	✔	✔	Install	Release Notes	☒
2.1.5	101 MB	2009/05/29 16:04:41			Download	Release Notes	

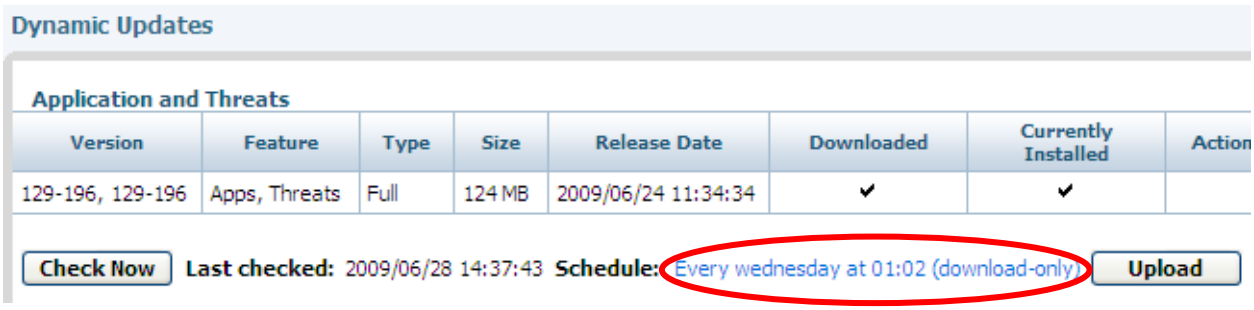
20. Click **Install** to upgrade your device. Reboot your device when prompted. After the device reboots, login to the web user interface.

21. You will download the latest URL filtering and threat databases. Go to **Device** tab -> **Dynamic Updates**. Click on the button **Check Now**. You will see an updated list of the latest Application and Threats database, and the latest URL Filtering database. Your screen will look similar to the one below.

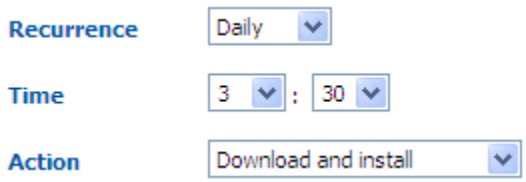


22. **Download** the latest Application and Threats database, and then **Install** it. (You can view the download and installation status using the CLI command **show jobs processed**.)

23. Configure the Application and Threat database to be automatically downloaded and installed. Next to the word Schedule, click on the blue text "Every Wednesday at 01:02 (download-only)".

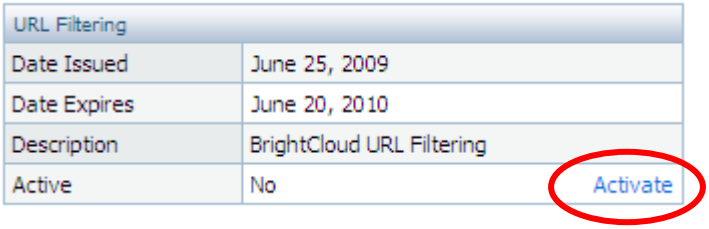


24. A popup will appear. Configure the update schedule to be on a daily basis, at a time that you select, and configure the database to be both downloaded and installed automatically.



25. **Commit** your changes.

26. Go to the **Device** tab -> **Licenses** page. Examine the URL Filtering portion. The Brightcloud URL database should have been automatically downloaded, and the screen should match the following:



If the URL database is still downloading, you will see the percent complete.

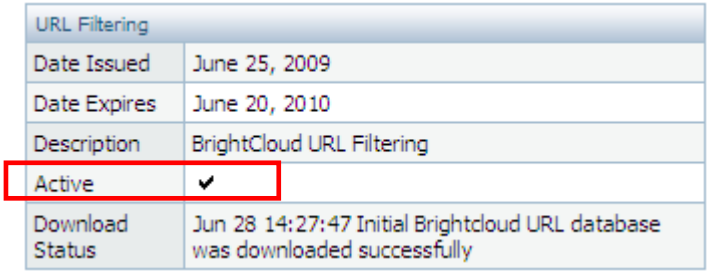
If you do NOT see the word "Activate", and the database is not currently downloading, you should initiate the download of the database using this command:

```
request url-filtering upgrade brightcloud
```

Wait a few minutes for the database to be downloaded. Refresh the licenses page, and the word "Activate" should appear.

27. Click **Activate** to activate the Brightcloud database. The system will reboot.

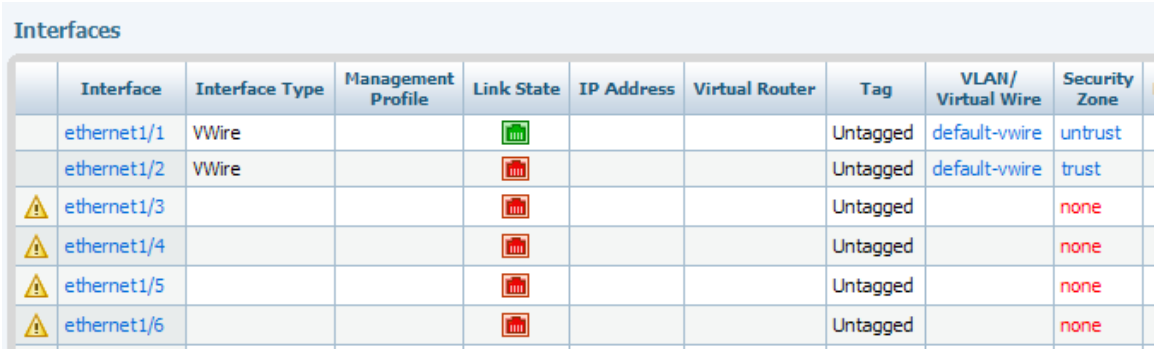
28. It will take a few minutes for the device to boot to an operational status. Once you login to the GUI, go to **Device** tab -> **Licenses** page to confirm that the BrightCloud database is now active.



Part 3: Configuring Virtual Wire Mode

The factory default configuration places e1/1 and e1/2 into a "virtual wire", which is what is used in vwire mode.

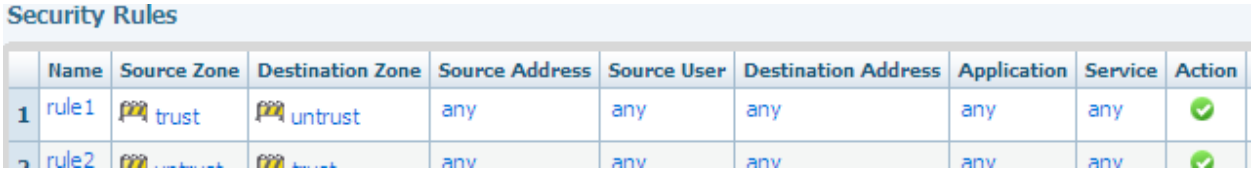
29. Go to Network tab -> Interfaces. A list of the interfaces will appear, as shown below.



If you want to use interfaces other than e1/1 and e1/2, delete those two from default-vwire, and put the other two interfaces into the default-vwire. Go to **Network** tab -> **Virtual Wire** to do this.

30. Go to the **Policies** tab. Confirm there is a rule from trust to untrust that permits all traffic.

31. If you have inbound connections, create a new rule to allow that inbound traffic, as shown here:



32. **Commit** your configuration.

Part 4: Putting the Device Inline

33. During a maintenance window, physically cable e1/1 to your untrusted network, and e1/2 to your trusted network.

34. Generate traffic from your trusted network to your untrusted network. Confirm that the traffic is going through the firewall device successfully.

35. Go to **Monitor** tab -> **Logs** -> **Traffic**. You will see completed sessions listed there.

36. If you created a policy from untrust to trust, test generating traffic in that direction as well.

37. After fifteen minutes or so, the firewall will begin to display graphs and tables under the Dashboard and ACC tabs. You can use those two tabs, as well as Monitor, to learn about the traffic that is traversing your network.

38. Confirm that all applications are traversing the firewall as expected. If there is a particular application that is not working, you may need to disable TCP SYN checking. The Palo Alto firewall, by default, will drop all data for sessions where it did not see the initial connection setup (TCP SYN packets). When the firewall was inserted in the network, there may have been existing sessions that were not able to re-establish. To disable TCP SYN checking, use these CLI commands:

```
configure
set deviceconfig setting session tcp-reject-non-syn no
commit
show session info
```

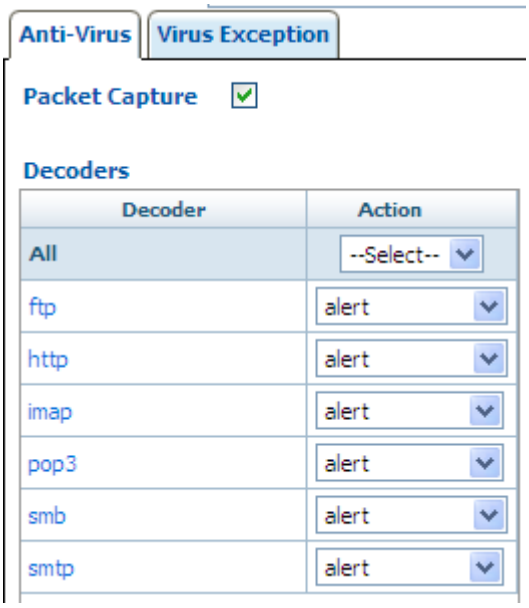
    The output of show session info will tell you if the setting is “yes” or “no”

    After a few hours, you can re-enable syn checking, and the application should work fine.

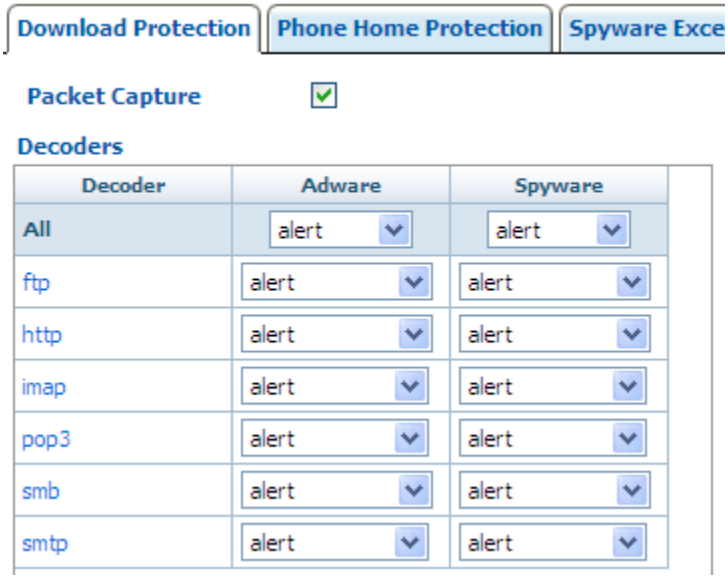
Part 5: Implementing Security Profiles

Now that you are satisfied that traffic is traversing the firewall, you can implement security profiles. Security profiles will inspect permitted traffic for viruses and threats, and perform URL filtering.

39. Go to **Objects** tab -> **Security Profiles** -> **Antivirus**. Create a **New** profile called "alert all viruses". Configure alerting on all of the decoder protocols. Enable packet capture as well.

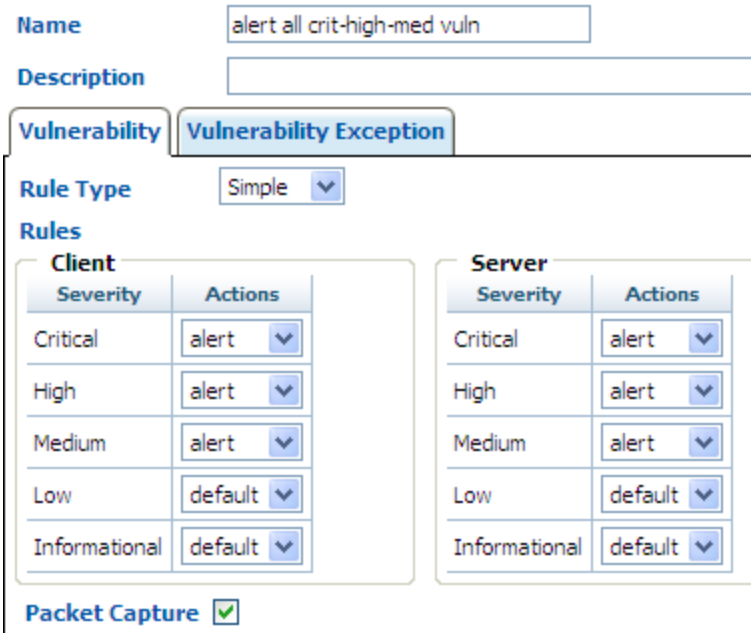


40. Go to **Objects** tab -> **Security Profiles** -> **Anti-spyware**. Create a **New** profile called "alert all spyware". Configure alerting for adware/spyware downloads via all of the decoder protocols. Enable packet capture.

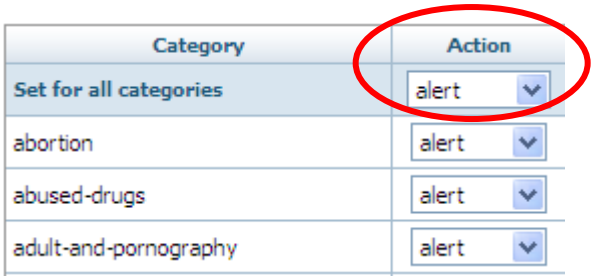


Select the **Phone Home Protection** tab. This monitors for spyware trying to communicate with its central controlling machine. Enable alerts on all critical, high, and medium severity events. Also enable packet capture.

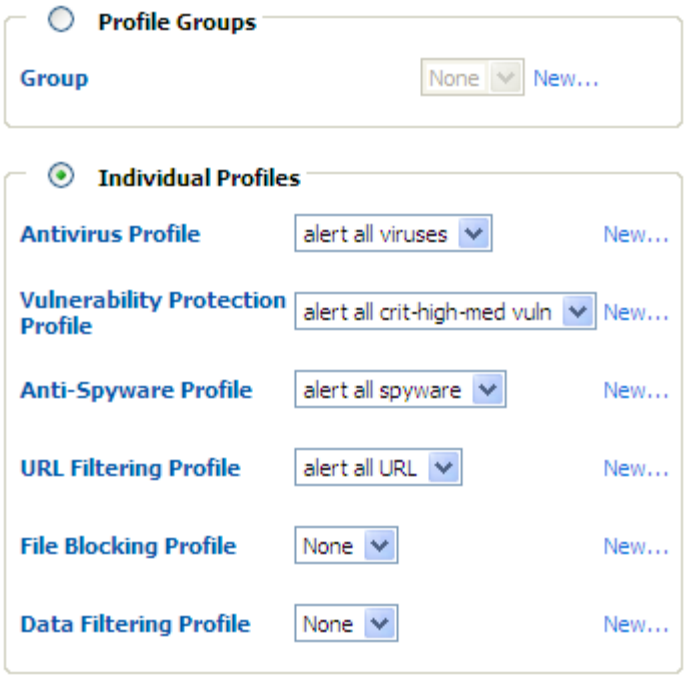
41. Go to **Objects** tab -> **Security Profiles** -> **Vulnerability Protection**. Create a **New** profile called "alert all crit-high-med vuln". Configure alerting for critical, high and medium severity attacks on a client, as well as on a server. Enable packet capture.



42. Go to the **Objects** tab -> **Security Profiles** -> **URL filtering**. The default profile will be shown. Create a **New** profile called “alert all URL”. In the top right corner, specify action of **alert** for all categories.



43. You will now enable inspection of permitted traffic for the threats you specified in the different security profiles. Go to the **Policies** tab. On the rule from trust to untrust, in the Profile column, click on the word **None**. Select the security profiles that you created.

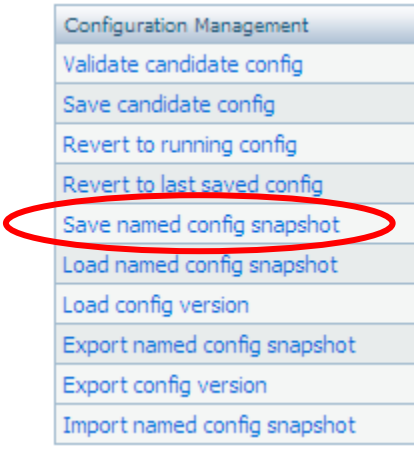


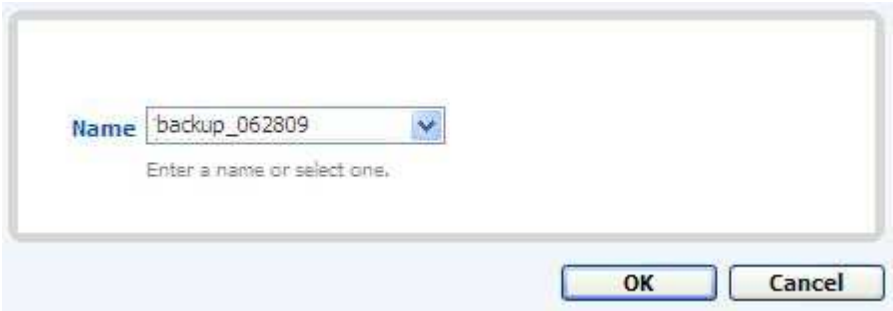
44. Your policy should now show icons in the Profile column, like this:

45. If you have a policy from untrust to trust, enable the same security profiles on that rule as well.

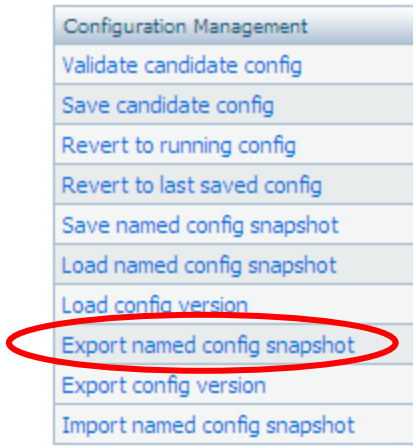
46. **Commit** the changes to your device.

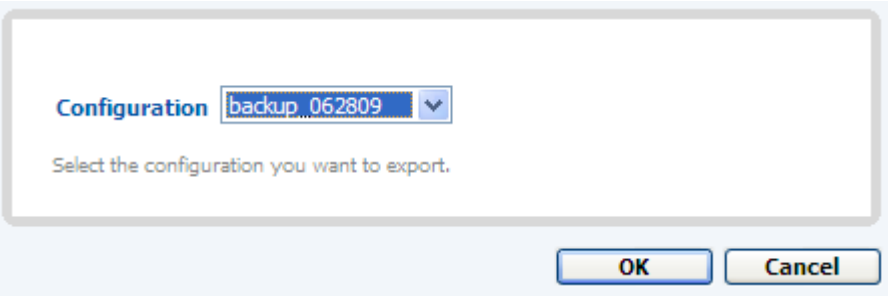
47. Best practice: save your configuration to a named configuration file, and export that file to the local PC. To do this, go to the **Device** tab -> **Setup**, and in the right-hand column, select **Save named config snapshot.**





Now, export that config to the local PC.





You can go back to this configuration at a later time by performing:

1. **Import named config snapshot**
2. **Load named config snapshot**

You can now test the threat detection features of the firewall as you see fit.