



securing your web

Technical Brief



High Availability Policy Server

Software Release 9.0

Copyright

© Copyright 1996-2008. Finjan Software Inc. and its affiliates and subsidiaries (“Finjan”).

All rights reserved.

All text and figures included in this publication are the exclusive property of Finjan and are for your personal and non-commercial use. You may not modify, copy, distribute, transmit, display, perform, reproduce, publish, license, create derivative works from, transfer, use or sell any part of its content in any way without the express permission in writing from Finjan. Information in this document is subject to change without notice and does not present a commitment or representation on the part of Finjan.

The Finjan technology and/or products and/or software described and/or referenced to in this material are protected by registered and/or pending patents including U.S. Patents No. 3952315, 6092194, 6154844, 6167520, 6480962, 6209103, 6298446, 6353892, 6804780, 6922693, 6944822, 6993662, 6965968, 7058822, 7076469, 7155743, 7155744 and may be protected by other U.S. Patents, foreign patents, or pending applications.

Finjan, Finjan logo, Vital Security, Vulnerability Anti.dote and Window-of-Vulnerability are trademarks or registered trademarks of Finjan. Sophos is a registered trademark of Sophos plc. McAfee is a registered trademark of McAfee Inc. Kaspersky is a registered trademark of Kaspersky Lab. Websense® is a registered trademark of Websense, Inc. IBM® Proventia® is a registered trademark of IBM Corporation. Microsoft and Microsoft Office are registered trademarks of Microsoft Corporation. All other trademarks are the trademarks of their respective owners.

For additional information, please visit www.finjan.com or contact one of our regional offices:

<p>USA: San Jose 2025 Gateway Place Suite 180 San Jose, CA 95110, USA Toll Free: 1 888 FINJAN 8 Tel: +1 408 452 9700 Fax: +1 408 452 9701 salesna@finjan.com</p>	<p>Europe: UK 4th Floor, Westmead House, Westmead, Farnborough, GU14 7LP, UK Tel: +44 (0)1252 511118 Fax: +44 (0)1252 510888 salesuk@finjan.com</p>
<p>USA: New York Chrysler Building 405 Lexington Avenue, 35th Floor New York, NY 10174, USA Tel: +1 212 681 4410 Fax: +1 212 681 4411 salesna@finjan.com</p>	<p>Europe: Germany Alte Landstrasse 27, 85521 Ottobrun, Germany Tel: +49 (0)89 673 5970 Fax: +49 (0)89 673 597 50 salesce@finjan.com</p>
<p>Israel/Asia Pacific Hamachshev St. 1, New Industrial Area Netanya, Israel 42504 Tel: +972 (0)9 864 8200 Fax: +972 (0)9 865 9441 salesint@finjan.com</p>	<p>Europe: Netherlands Printerweg 56 3821 AD Amersfoort, Netherlands Tel: +31 334 543 555 Fax: +31 334 543 550 salesne@finjan.com</p>

Catalog name: HA-PS – TB – 9.0-1

Email: support@finjan.com

Internet: www.finjan.com

Table of Contents

1.	Introduction	1
2.	High Availability Overview	1
3.	Configuring a Standby Policy Server	2
3.1	Installing a new Policy Server	2
3.2	Adding a new Policy Server	3
3.3	Manual Synchronization	4
3.4	Scheduled Synchronization	5
3.5	Switch-over	6
4.	Changing Policy Server Mode	8
5.	Restarting the Active/Standby Policy Server	9
6.	Use-Case Scenarios	11
6.1	Maintenance Switch-over	12
6.2	Active Policy Server Failure	12
6.3	Switching roles of Policy Server	12
6.4	Partial Rollback	13
6.5	VSOS Updates	13

1. Introduction

The Vital Security NG Appliance series supports an Active and a Standby Policy Server topology to avoid an administrative single point of failure in the system and to enable continuous operation at all times. This service is known as the High Availability Policy Server (HA-PS).

Although not an essential component during the ongoing scanning process, the Policy Server is a single point of failure in the Vital Security deployment. If a problem arises and the Policy Server is not functional, then the system cannot receive updates, the administrator can not manage the system, logging information may be lost and if configured as such – scanning may stop. In addition, it may be required to turn off the Policy Server for scheduled maintenance. Therefore, having a second Policy Server as a failover which can take control in case of failure is required in most medium and large enterprises.

This document describes the HA-PS solution, from configuration to synchronization and switching between the two Policy Servers. In addition, several use cases are documented.

2. High Availability Overview

Both Policy Servers-Active and Standby- are dedicated appliances serving this single role, i.e. neither can be defined as an All in One. Administrators use the Active Policy Server for administration and configuration purposes; with a Standby machine that they can switch over to in cases of system maintenance, system failure, partial rollback etc.

The HA-PS is based on two main procedures: synchronization between the two Policy Servers and the switch-over mechanism between them.

The synchronization process is based on a combination of automatic, scheduled and manual processes, sent from the Active Policy Server to the Standby Policy Server, according to the administrator's definition. This ensures that both Policy Servers are kept up to date with the same settings and configuration such that when a switch-over is performed, the Standby Policy Server can act as a full backup, and system operation can continue as usual.

Both Policy Servers must have the same OS before any other manual configuration or synchronization can take place. The administrator can define that once installed; the OS version will be automatically installed on the Standby Policy Server as well. However, this is not the recommended configuration as keeping the Standby Policy Server isolated from automatic OS updates can be useful in other scenarios (See Use Case scenarios). For example, it enables fail-safe operation by allowing the administrator to check and validate OS updates on the Active PS first, whilst keeping the Standby Policy Server operating as a backup in the meantime.

The system provides the administrator with a mechanism to manually synchronize the two Policy Servers. This process will synchronize the OS

version (if needed), and synchronize the configuration parameters from the Active Policy Server to the Standby Policy Server.

The second procedure in the HA-PS is the switch-over between the two Policy Servers. The switch-over is performed manually by the administrator, in one of the following ways:

- ◆ Switching from the Active Policy Server Management Console – this is useful in maintenance scenarios, where the Active Policy Server is still functioning.
- ◆ Switching from the Standby Policy Server - this is useful in failure scenarios, where the Active Policy Server is not functioning.

The following network layout describes a typical installation of a system that works with an Active-Standby Policy Server topology.

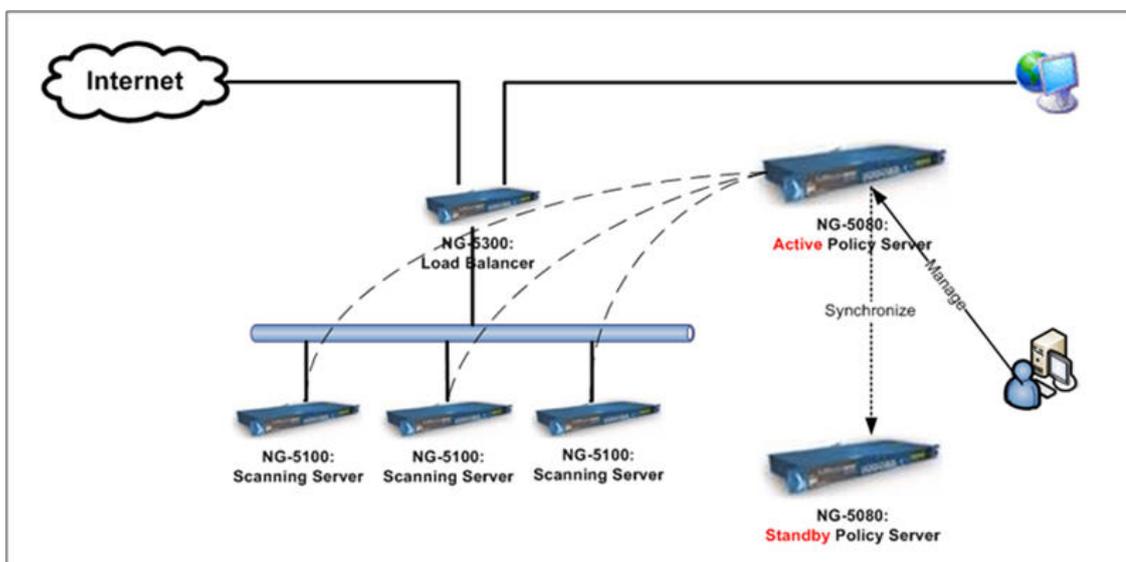


Figure 1: High Availability Topology

The following procedures are detailed below:

[Configuring a Standby Policy Server](#)

[Changing Policy Server Mode](#)

[Restarting the Active/Standby Policy Server](#)

3. Configuring a Standby Policy Server

This section describes how to add a Standby Policy Server to an existing deployment that uses a single Policy Server.

3.1 Installing a new Policy Server

⇒ **To install the Standby Policy Server:**

1. On a dedicated appliance, install the same VSOS that is used by the current Policy Server.
2. Using the Limited Shell setup commands, define this appliance as a Policy Server. (Do not configure it as an All in One)

3.2 Adding a new Policy Server

⇒ To add the Policy Server:

1. In the Management Console of the Active Policy Server, navigate to Administration → System Settings → Finjan Devices → IP Address → Policy Server → High Availability.
2. Click **Edit** and check **Enable High Availability Policy Server** and define the Standby Policy Server IP. For example, 10.194.90.133



NOTE: Make sure to keep a note of the IP address handy.

Figure 2: High Availability Policy Server

3. Leave the checkbox in the **VSOS Update** section unselected for the time being. When selected, it automatically sends a new VSOS Update to the Standby Policy Server after it has been installed on the Active Policy Server.
4. Select the required values in the [Scheduled Synchronization](#) section.
5. Click Save and click 

3.3 Manual Synchronization

At any time, you can choose to send the Policy Server configuration settings from the Active Policy Server to the Standby Policy Server.

⇒ **To perform manual synchronization:**

1. In the Active Policy Server Management Console, navigate to Administration → System Settings → Finjan Devices → IP Address → Policy Server → High Availability.
2. Right-click on the High Availability and click **Synchronize now**. The settings are sent from the Active Policy Server to the Standby Policy Server.

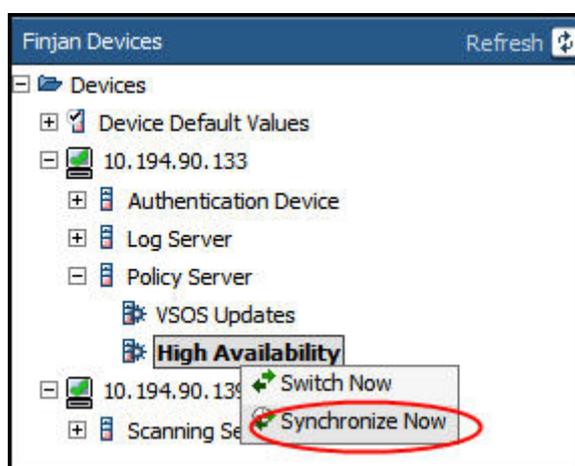


Figure 3: Synchronize Now

Check in the System Log that this was successful.

Log ID	Time	Device IP	Message
1028	2008-05-04 15:02:52.0	10.194.90.136	The Log Handler was automatically restarted.
1027	2008-05-04 15:02:49.0	10.194.90.136	The Log Handler is no longer active. It will be automatically restarted.
1026	2008-05-04 15:02:48.0	10.194.90.136	Update configuration completed successfully.
1025	2008-05-04 14:58:11.0	10.194.90.136	Synchronization with the Standby Policy Server succeeded.
1024	2008-05-04 14:57:29.0	10.194.90.136	Synchronization with the Standby Policy Server started.
1023	2008-05-04 14:55:38.0	10.194.90.136	The Log Handler was automatically restarted.
1022	2008-05-04 03:59:44.0	10.194.90.139	Update configuration completed successfully.
1021	2008-05-04 14:55:36.0	10.194.90.136	The Log Handler is no longer active. It will be automatically restarted.
1018	2008-05-04 14:55:34.0	10.194.90.136	Update configuration completed successfully.
1017	2008-05-04 14:59:42.0	10.194.90.133	Update configuration completed successfully.
1016	2008-05-04 14:53:54.0	10.194.90.133	The Log Handler was automatically restarted.

Figure 4: System Logs - Synchronization Successful

In the Synchronization tab, the Last Synchronization Time will display the current time after pressing refresh.

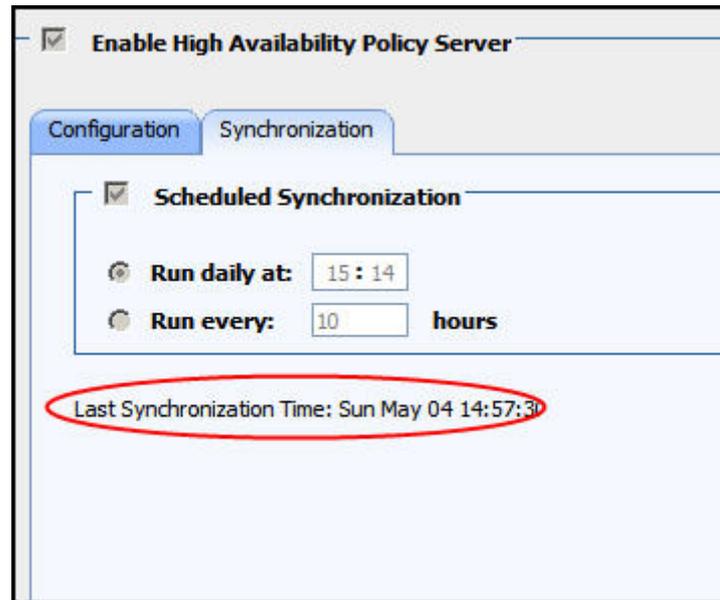


Figure 5: Last Synchronization Time - Updated

3.4 Scheduled Synchronization

Finjan recommends setting the Policy Server synchronization to be run nightly during off-hours, e.g. 2.00 am. Doing so will mean having an updated system in a daily granularity, so that the administrator will always have a backup of the latest configuration from the previous day. Alternatively, synchronization can be scheduled to run every few hours, which would provide you with more up-to-date configuration settings.

⇒ **To perform scheduled synchronization:**

1. In the Active Policy Server Management Console, navigate to Administration → System Settings → Finjan Devices → IP Address → Policy Server → High Availability.
2. In the Synchronization tab, click Edit and ensure that Enable High Availability Policy Server is selected.
3. Select the Scheduled Synchronization checkbox.

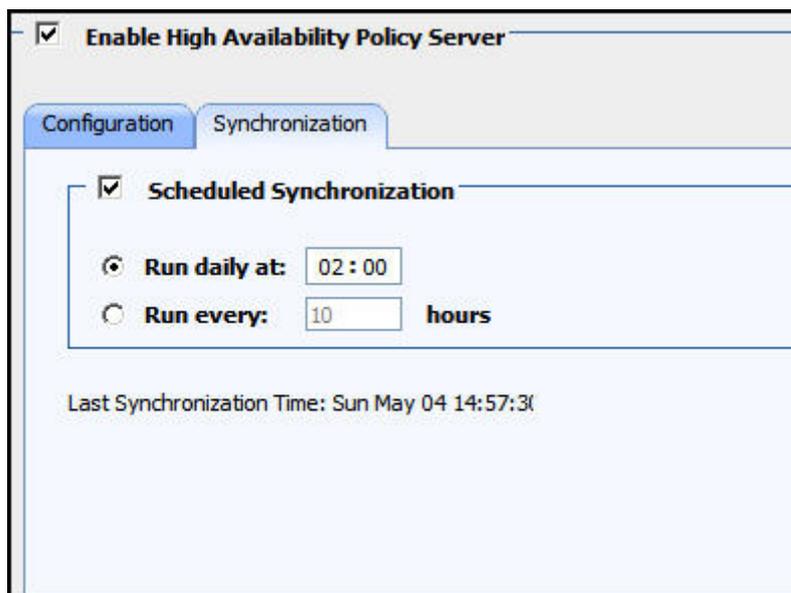


Figure 6: Synchronization tab

4. Select either to run the scheduled synchronization daily at a specific hour, or choose to run it every number of hours.
5. Click **Save** and click 

3.5 Switch-over

You can switch over from the Active Policy Server to the Standby Policy Server – or vice versa through the Management Console. The switch-over from Active to Standby is a manual procedure.

⇒ **To switch from an Active to a Standby Policy Server:**

1. In the Active Policy Server Management Console, navigate to Administration → System Settings → Finjan Devices → IP Address → Policy Server → High Availability.
2. Ensure High Availability is enabled and a Standby Policy Server is defined.
3. In the left tree, right-click on High Availability and click Switch Now.

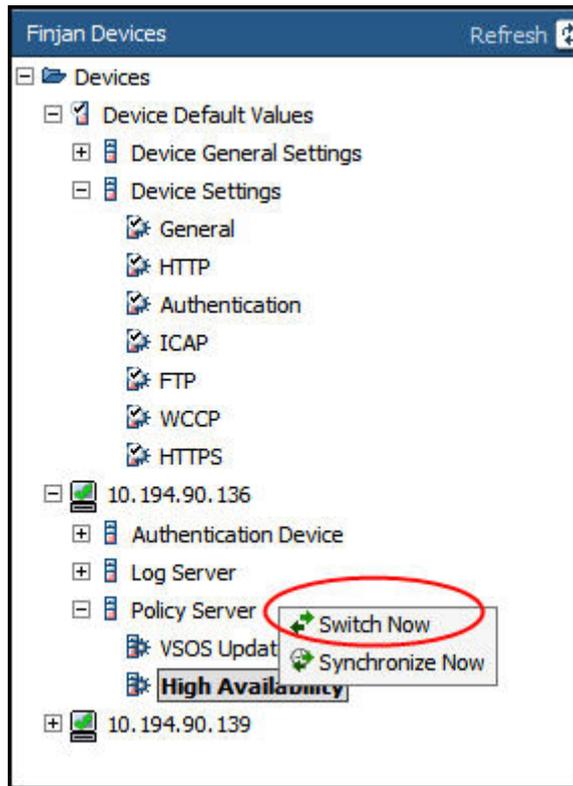


Figure 7: Switch Now

The following confirmation message will appear.



Figure 8: Confirmation Message - Switch Now

4. Click OK. The following message appears.

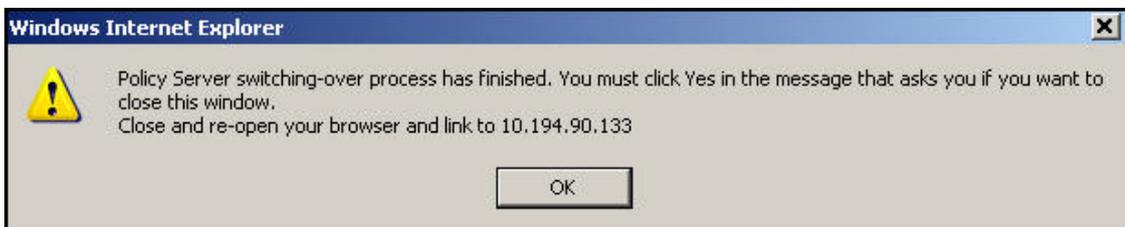


Figure 9: Switch-Over Complete

5. Click OK. The following message appears.

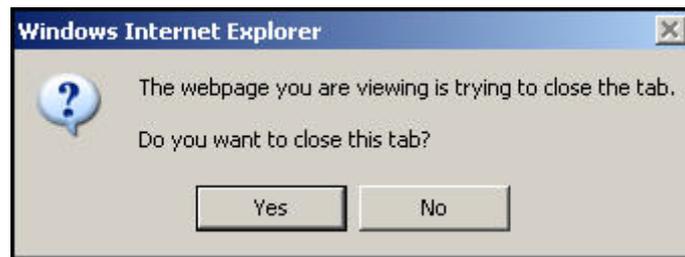


Figure 10: Close Tab - Click Yes

6. Click Yes.
7. To enter the new Active Policy Server, you need to relog in with the new IP address.

If you attempt to login to the Standby Policy Server at any stage, you will see this screen.

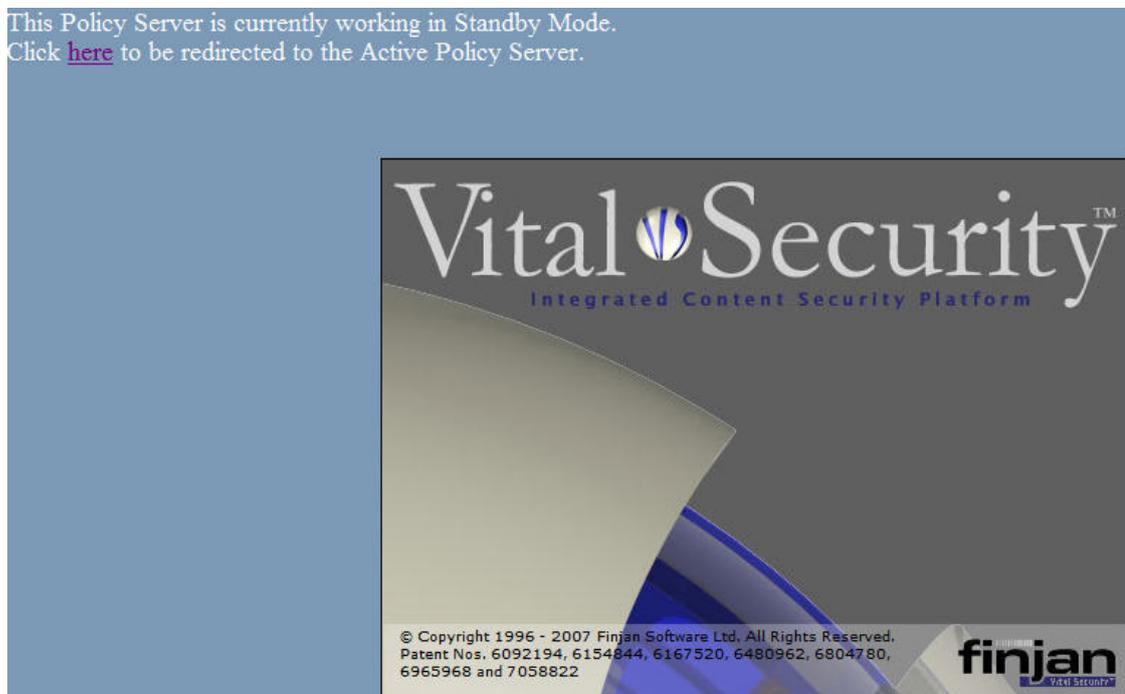


Figure 11: Redirect Screen

Click on the link to be automatically redirected to the other Policy Server which is now working in Active Mode.

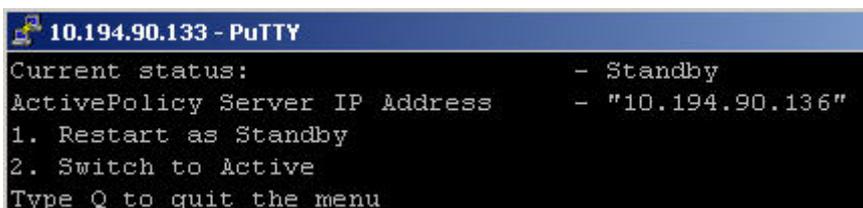
4. Changing Policy Server Mode

You can also switch the Policy Server's mode on its own from Active to Standby or vice versa. If you switch an Active Policy Server to become a Standby Policy Server in a High Availability configuration, both Policy Servers will work in Standby Mode, until you change the other Policy Server through the Limited Shell.

However, if you switch a Standby Policy Server to become an Active Policy Server, the other Policy Server, previously Active, will be forced into Standby mode. In other words, the system will not allow two Policy Servers to be working in Active mode at the same time.

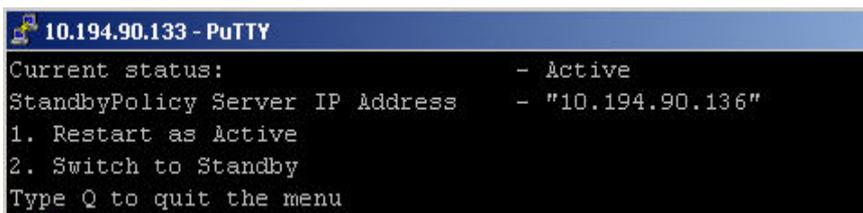
⇒ **To change the mode of an Active Policy Server:**

1. In the Management Console, ensure that the High Availability Policy Server feature is enabled and a Standby Policy Server has been defined.
2. In the Limited Shell, enter the `config_psha` command.
3. In the menu that appears, choose 2 Switch to Standby/Active.



```
10.194.90.133 - PuTTY
Current status:                - Standby
ActivePolicy Server IP Address - "10.194.90.136"
1. Restart as Standby
2. Switch to Active
Type Q to quit the menu
```

Figure 12: Limited Shell - config_psha command Standby status



```
10.194.90.133 - PuTTY
Current status:                - Active
StandbyPolicy Server IP Address - "10.194.90.136"
1. Restart as Active
2. Switch to Standby
Type Q to quit the menu
```

Figure 13: Limited Shell - config_psha command Active Status



NOTE: If the current status is Active – then option number 2 will read Switch to Standby and vice versa

5. Restarting the Active/Standby Policy Server

In cases of failure, there may be times when Finjan Support will ask you to restart the Policy Server as either Active or Standby – depending on its current status.



WARNING: Do not perform this action without consulting Finjan Support.

⇒ **To restart the Policy Server**

1. In the Limited Shell, enter the `config_psha` command.

2. Select option 1 Restart as Active/Standby (see Figure 12: Limited Shell - config_psha command Standby status)

6. Use-Case Scenarios

The High Availability Policy Server topology can be used for the following cases:

- ◆ [Maintenance Switch Over](#): When performing critical maintenance work on the Active Policy Server, the Standby Policy Server acts as an alternative server and the administrator can switch over to it at any time to continue management tasks.
- ◆ [Active Policy Server Failure](#): When the Active Policy Server encounters a failure of any kind (software, hardware or network), the administrator can switch-over to the Standby Policy Server thus guaranteeing lossless operation.
- ◆ [Partial Rollback](#): The Standby Policy Server can act as a live backup for Policy Server settings and configuration. In situations, where the Standby Policy Server is not frequently synchronized, or is only manually synchronized, the Standby Policy Server can be used as a backup for “last known configuration”. In such cases, operational changes on the Active Policy Server can be rolled-back by simply switching over to the Standby Policy Server.
- ◆ [VSOS Updates](#): Vital Security Operating System (VSOS) Updates can be installed and tested on one Policy Server and several Scanning Servers, and once proven capable, can be synchronized with both Policy Servers. Note that VSOS Updates only refers to Major Software Releases. Maintenance Updates (including Hot Fixes) and Security Updates can only be installed using Manual or Scheduled Synchronization.

6.1 Maintenance Switch-over

When performing intensive and critical maintenance work on a Policy Server, it is recommended to work on a Standby Policy Server and only then to switch over. To perform a switch-over for Maintenance reasons, it is recommended to manually synchronize the two Policy Servers and then to switch over.

⇒ **To perform a maintenance switch-over:**

1. In the Active Policy Server Management Console, navigate to Administration → System Settings → Finjan Devices → IP Address → Policy Server → High Availability. Ensure that High Availability is enabled and a Standby Policy Server is defined.
2. Right-click on High Availability and click **Synchronize now**.
3. The settings are sent from the Active Policy Server to the Standby Policy Server. Check in the System Log that the synchronization was carried out successfully. In addition, the Last Synchronization Time should display the current time.
4. Next, carry out the Switch-Over process as documented in [Switch-over](#)

6.2 Active Policy Server Failure

In a situation where there is a Policy Server malfunction or failure (due to electricity outage, hardware failure, software problem, etc.), if a Standby Policy Server appliance is in place, the administrator can continue working and performing system management and configuration after applying an easy switch-over to the attached Standby Policy Server.

If the Active Policy Server fails, the first recommended course of action is to try and resolve the cause of the failure. If the problem cannot be resolved with immediate action (e.g. restarting the machine, checking the network connectivity, etc.), it is recommended to switch roles between the Active and Standby Policy Server.

6.3 Switching roles of Policy Server

When switching roles between the Active and Standby Policy Servers, the Standby Policy Server is promoted to an Active Policy Server, and the Active is demoted to a Standby. The system will not allow two Policy Servers that are connected in Active/Standby to behave together as an Active Policy Server. It is possible however to have both Policy Servers declared as Standby Policy Servers. This should be considered as a temporary topology that needs to be changed manually by the administrator.

⇒ **To switch the role of a Standby Policy Server:**

1. In the Limited Shell of the Standby Policy Server, use the `config_psha` command to switch the role to Active.

2. The Standby Policy Server will now restart as an Active Policy Server. The other Policy Server will be forced into a Standby position, if it isn't already.



NOTE:

The same procedure can be carried out for an Active Policy Server but with one crucial difference. When you configure it to become a Standby, the other Policy Server will NOT automatically become an Active Policy Server. You will need to access the Limited Shell of the other Policy Server and use the `config_psha` command to switch it to Active.

Once the problem in the original Active Policy Server has been resolved, the administrator can use the same procedure to perform a failback and switch over the roles between the Policy Servers. This is not mandatory, and can be decided by the administrator based on the organization's policy, network rules and other considerations.

6.4 Partial Rollback

The High Availability Policy Server configuration can be used to return to a previous Policy Server configuration, in cases where the configuration on the Active Policy server has been damaged or configured with wrong values. Before switching the role between Active and Standby Policy Servers, it is recommended to check in the Log View for the last synchronization time. If the time of the last synchronization holds the required configuration, you can perform a switch-over to the Standby Policy Server which has the older configuration settings.

You can then perform a manual synchronization and switch back again.

To switch roles between the Active and Standby Policy Servers, follow the [Switch-over](#) procedure.

6.5 VSOS Updates

Finjan recommends testing a new Software Version on the Active Policy Server before applying it on the Standby Server, so that a switch-over can be performed in the case of a failure. It is also possible to update only selected scanning servers and when such updates succeed, gradually update other scanning servers until the whole system is set up.



NOTE:

All the Scanning Servers will update automatically to the new Software Version if you do not select the VSOS Updates option. In addition – there is no way to reverse a Scanning Server to a previous version.

This procedure helps to reduce possible negative effects and system downtime. For further information, refer to the Management Console Reference Guide, Scanning Server VSOS Updates.

⇒ **To test a VSOS Update on the Active Policy Server:**

1. In the Active Policy Management Console, verify that the VSOS Update checkbox is unchecked.

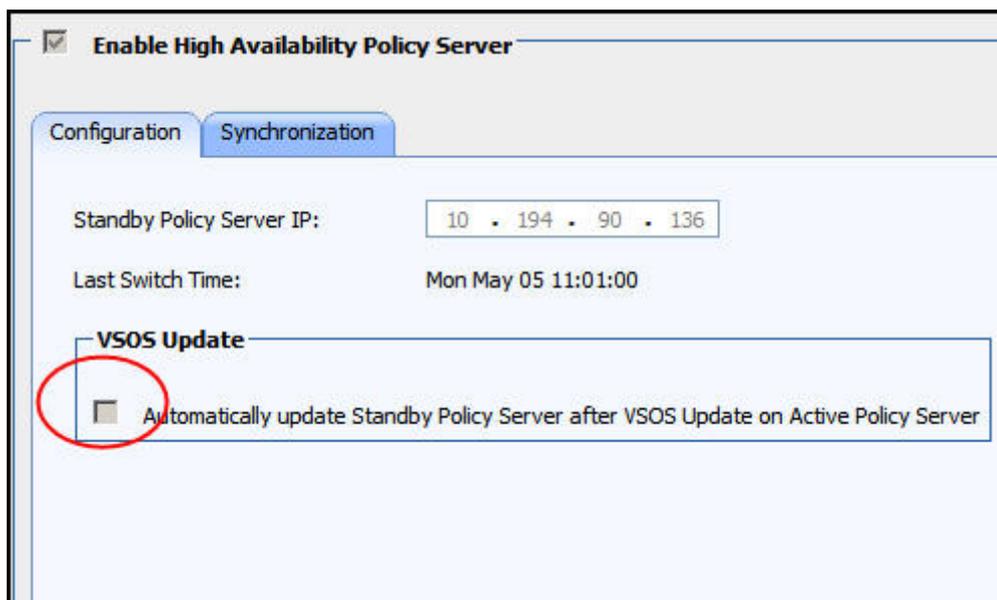


Figure 14: VSOS Update unchecked

2. Install the VSOS update from the update site, or use an offline VSOS update.
3. Once updated, perform various sanity tests on your Scanning Servers to ensure that the system is working correctly.

Once you have determined that the VSOS Update works as required, you need to perform Manual Synchronization. The synchronization procedure will prompt you to update the VSOS of the Standby Policy Server before carrying out the synchronization.

⇒ **To perform manual synchronization:**

1. In the Active Policy Server Management Console, navigate to Administration → System Settings → Finjan Devices → IP Address → Policy Server → High Availability.
2. You will see a message in red next to the Standby Policy Server IP address indicating that its VSOS (Software Version) is not compatible with the VSOS you installed on the Active Policy Server.
3. Click Synchronize Now.

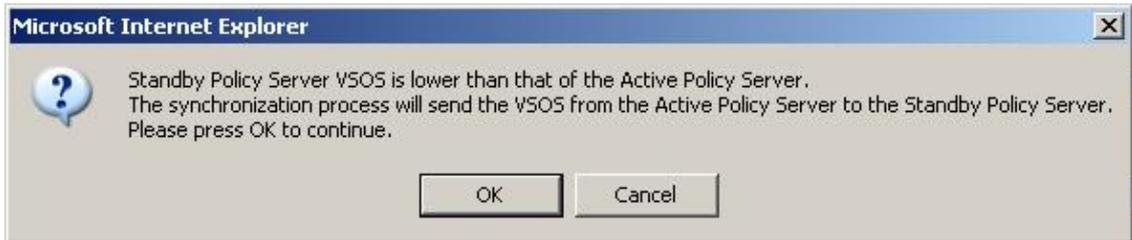


Figure 15: Different VSOS Alert

4. You will be asked to confirm that you are updating the VSOS of the Standby Policy Server. Click **OK**.
5. The settings are sent from the Active Policy Server to the Standby Policy Server. This may take several minutes. Check in the System Log that this was successful.
6. Press refresh in your browser to display the updated Last Synchronization Time. The red error message will disappear from the screen