



XROADS NETWORKS

Network Appliance How To Guide: EdgeHA

How To Guide

EDGE NETWORK APPLIANCE

How To Guide EdgeHA

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Edge Configuration Series

EdgeHA Overview

The EdgeHA (High Availability) module enables the ability of the Edge appliance to failover from a primary hardware unit to a secondary hardware unit in the case of a hardware failure of the primary unit. This module ensures hardware redundancy for mission critical networking.

Below is a basic diagram of how two Edge appliances can be configured in HA mode. This diagram assumes the use of the LAN port for the HA testing between the two units.

Either the LAN or WAN5 may be used for HA failover testing. The tests performed are simple ICMP tests to specific HA addresses assigned to each appliance. It is important that these addresses are not currently in use by the customer.

NOTE: It is critical that which ever port is selected for HA testing that the port remain available at all times and that each port is able to communicate with the other at all times. Any loss of communication would trigger the HA module to failover to the secondary unit. Failover occurs over a period of 60 seconds.

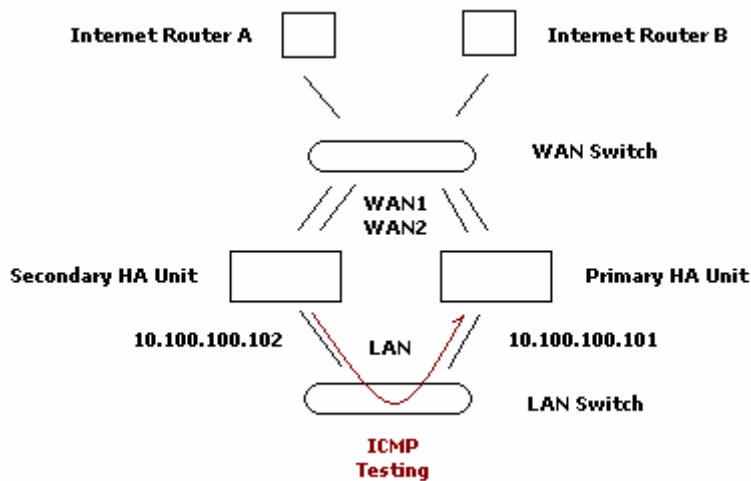


Diagram: All ports on the WAN and LAN interfaces are connected to two separate switches so that in the event of a failure the secondary will have access to same IP address space.

Upon failover the secondary unit will update its MAC addresses to become the primary unit and resume all IP traffic flows.

Setup Procedure

The configuration process for the HA module is fairly simple, however it must be followed exactly or the failover will not initialize correctly.

Step 1) Make sure the secondary unit is in its default state.

Step 2) Configure the HA parameters (see instructions below) on both the primary and secondary unit via the TOOLS menu option via the web interface control. Make sure to leave both HA modules in INACTIVE mode at this time.

Step 3) Save the configuration files on both the primary and secondary units.

Step 4) Connect all of the appropriate cables on the WAN and LAN side of the appliances. Make sure that you have good Ethernet layer connectivity by check the Ethernet link lights.

Step 5) Enable the HA module on the PRIMARY unit, then check to make sure that you are able to ping the HA IP address on the primary unit.

Step 6) Once you have confirmed that you have a good, pingable link on the primary unit, enable the HA mode on the secondary unit.

Step 7) Failover can not occur until the secondary unit has automatically obtained the configuration information from the primary unit. This occurs at the designated sync interval.

NOTE: Once the configuration has been sync'd the HA screen will display a SYNC'd message. At this point the HA failover module is now "armed" and ready.

Primary Unit Configuration

To configure the primary appliance for failover, go to the Tools menu and select the High Availability option from the drop-down menu.

The screen below provides an example of how one might configure the HA module.

The screenshot shows the XRoads web interface. At the top, there is a navigation bar with the XRoads logo on the left and a menu with options: Home, Interfaces, EdgeDNS, EdgeNAT, EdgeWALL, EdgeBPR, Tools, and Reporting. A 'Vector Routing' label is positioned above the menu items. Below the navigation bar, a dark blue header contains the word 'TOOLS' in white. A message reads: 'This is the XRoads Tools control panel; from here you can perform various tests to troubleshoot'. The main content area is a configuration form for High Availability. It includes a dropdown menu set to 'High Availability'. Below this are two IP address input fields: '10 . 100 . 100 . 101' (labeled 'HA Primary Address') and '10 . 100 . 100 . 102' (labeled 'HA Secondary Address'). There is a text input field for a serial number, '0090FB048C4A', with a note '(Enter The Serial Number From The Secondary HA Unit)'. A dropdown menu is set to 'PRIMARY' with a note '(Select the function for this XRoads device.)'. Another dropdown menu is set to 'Every Fifteen Minutes' with a note '(How Often Should The Configuration Be Sync'd?)'. A dropdown menu is set to 'LAN' with a note '(Which port to use for failover testing?)'. At the bottom of the form, there are two radio buttons: 'Inactive' and 'Active' (which is selected). Finally, there are two buttons: 'HA Update' and 'HA Default'.

HA Primary Address – This is the address that will be assigned to the primary appliances network interface. The interface it is assigned to is selected below.

HA Secondary Address – This is the address that is assigned to the secondary appliance. The secondary will use this address when performing ICMP testing to the primary address.

Serial Number – This is the serial number that the primary uses to verify the secondary when the configuration information is requested for sync'ing.

Select Function – This parameter is used to determine which device is currently being configured.

Port – This option determines which port will be used for the HA testing, make sure to use the same port on both appliances.

Inactive / Active – Determines the current state of the HA mode.

Secondary Unit Configuration

To configure the secondary appliance for failover, go to the Tools menu and select the High Availability option from the drop-down menu.

The screen below provides an example of how one might configure the HA module.

The screenshot shows the XRoads web interface. At the top, there is a navigation bar with the XRoads logo on the left and a menu with items: Home, Interfaces, EdgeDNS, EdgeNAT, EdgeWALL, EdgeBPR, Tools, and Reporting. The 'Tools' menu is currently selected. Below the navigation bar, there is a dark blue header with the word 'TOOLS' in white. To the right of this header, a message reads: 'This is the XRoads Tools control panel; from here you can perform various tests to troubleshoot'. The main content area is a configuration form for High Availability. It features a sidebar on the left with 'XRoads Tools: ?' and 'High Availability: ?'. The form includes a dropdown menu set to 'High Availability'. Below this are two IP address input fields: '10 . 100 . 100 . 101 (HA Primary Address)' and '10 . 100 . 100 . 102 (HA Secondary Address)'. There is a text input field for a serial number, '0090FB048C4A', with the instruction '(Enter The Serial Number From The Secondary HA Unit)'. A dropdown menu is set to 'SECONDARY' with the instruction '(Select the function for this XRoads device.)'. Another dropdown menu is set to 'Every Fifteen Minutes' with the instruction '(How Often Should The Configuration Be Sync'd?)'. A dropdown menu is set to 'LAN' with the instruction '(Which port to use for failover testing?)'. At the bottom of the form, there are two radio buttons: 'Inactive' and 'Active', with 'Active' selected. Finally, there are two buttons: 'HA Update' and 'HA Default'.

HA Primary Address – This is the address that will be assigned to the primary appliances network interface. The interface it is assigned to is selected below.

HA Secondary Address – This is the address that is assigned to the secondary appliance. The secondary will use this address when performing ICMP testing to the primary address.

Serial Number – This is the serial number that the primary uses to verify the secondary when the configuration information is requested for sync'ing.

Select Function – This parameter is used to determine which device is currently being configured.

Port – This option determines which port will be used for the HA testing, make sure to use the same port on both appliances.

Inactive / Active – Determines the current state of the HA mode.

Post Failover Procedures

After a failover has been detected the secondary unit will take over all traffic flow functions and will also assume the primary systems MAC addresses. It is critical that the primary not be re-enabled after this has occurred as it will cause other network problems.

Upon a primary failure, always remove the primary unit from the network as soon as possible so as to minimize any potential problems with that unit. Obtain a replacement unit by contacting XRoads Networks and obtaining an RMA for that unit.

Follow these procedures to reset the HA mode after a failure has occurred:

NOTE: This should be done after hours as it will cause downtime.

Step 1) Shutdown and remove the primary (non-functioning) unit. Prepare the NEW primary unit by installing the configuration file and confirm that the configuration is correct.

Step 2) Login to the secondary unit and click the HA Update. This will reset the secondary back to a default mode (the previously sync'd configuration will be deleted) and all traffic will stop.

Step 3) Install the new primary unit and bring online. Test all functionality and confirm a good installation. Make sure to Save and backup the configuration when ready.

Step 4) Setup the primary HA service once again using the steps outlined above.

Step 5) The secondary unit will begin testing the primary once again and will attempt to sync the configuration once the primary is online.

Disabling HA Mode

Step 1) Access the web interface of the secondary unit through the HA IP address.

Step 2) Click the HA Default button.

Step 3) Power down the secondary unit.

Step 4) Access the primary unit, Tools->High Availability and click the HA Default button.

Step 5) Remove the secondary unit and all associated cabling.