



Gateways / Failover

Help Documentation

Gateways / Failover

Outbound Gateway

Gateway servers allow you to reduce the load on your primary server by using a secondary server to process outbound mail. Gateway servers can also be used to combat blacklisting. If the gateway server gets blacklisted, simply rotate the primary IP on the network card to a different one to send out on the new IP.

To access the outbound gateway settings, log into SmarterMail as a System Administrator and click on the Settings icon. Then select Gateways / Failover in the navigation pane. The Outbound tab will be highlighted, by default.

To add a new outbound gateway, click the New button. When adding or editing an entry, the following settings will be available:

Options

- Server Address - The IP address of the gateway server.
- Port - The port used to connect to the gateway server.
- Encryption - Select the type of encryption from the list.
- Status - The status of the outbound gateway. To temporarily turn off the outbound gateway, select Disable from the list.
- Type - This sets the behavior of the gateway: it will either "Round Robin", meaning that when multiple gateways are configured, domains will use one then use the next to send mail, cycling through each gateway, or it's possible to set up a gateway to be used by "Specific Domains". When a gateway is set up to be used by Specific Domains, the gateway is selected FOR the domains when the domains are being set up. (Or, it's possible to set the gateway for a domain after it's been set up.)
- Enable Authentication - Enable this setting if your outbound gateway server requires authentication. Then enter the Auth Username and Password below.
- Auth Username - The authorized username of the gateway server.
- Auth Password - The corresponding password for the authorized username.

SmarterMail Gateway

- Enable SmarterMail gateway mode - Enable this setting to indicate that the outbound gateway server is another SmarterMail server.
- SmarterMail URL - The Webmail URL for the SmarterMail server being used as an outbound gateway. This will allow the use of web services to verify the users and domains.

- SmarterMail Username - The identifier used to login to the primary mail server.
- SmarterMail Password - The corresponding password used to login to the primary mail server.

Inbound Gateways

The purpose of an inbound gateway is to reduce server load. Generally, spam checks and antivirus scans should be performed on the inbound gateway, freeing up the primary server processing for the delivery of messages.

To access the inbound gateway settings, log into SmarterMail as a System Administrator and click on the Settings icon. Then click on Gateways / Failover in the navigation pane and select the Inbound tab.

To add a new inbound gateway, click New . When adding or editing an entry, the following settings will be available:

Options

- Gateway Mode - The function that the inbound gateway will perform. If the inbound gateway is set to Backup MX , it will only receive messages when your primary server is down. If the inbound gateway server is set to Domain Forward , it will receive all messages and forward them to your primary server.
- IP Addresses (single or range) - The IP address, or range of IP addresses, of the primary mail server.
- Status - New gateways default to a status of Enabled. To temporarily stop an inbound gateway, you can change the status to Disabled.
- SMTP User Verification - This setting makes SmarterMail verify that a recipient exists when accepting mail from the gateway.

Domains

This card is only available if the gateway mode is set to Domain Forward. Domain forwarding allows you to easily send mail through one server to another. This will allow your server to act as an inbound gateway to your network, and permit you to have a single point of entry for inbound SMTP traffic.

When messages come in to a forwarded domain, they are run through the command-line .exe referenced in the Protocols settings. If a delivery delay has been established for the server, messages are also delayed accordingly. This allows you to establish an inbound server that can run external virus or spam scanners, which can reduce the load on your existing network servers.

Use this card to specify for which domains the inbound gateway will accept mail:

- Domain Verification - The method used by the inbound gateway to determine if a domain is

valid or not: Specified Domains or All But Specified Domains. List the domain(s) below (one entry per field).

SmarterMail Gateway

- Enable SmarterMail Gateway Mode - Select this option to indicate that the inbound gateway server is another SmarterMail server.
- SmarterMail URL - The Webmail URL for the SmarterMail server being used as an inbound gateway. This will allow the use of Web services to verify the users and domains.
- SmarterMail Username - The identifier used to login to the primary mail server.
- SmarterMail Password - The corresponding password used to login to the primary mail server.

- User Verification - The method used by the inbound gateway to determine if a user is valid or not. Note: If none is selected, the inbound gateway server will accept all email addresses for the domain. If Web service is selected, the inbound gateway will check with the primary mail server for a list of valid email addresses.

Spam

Use this tab to specify the following spam checks:

- Not Spam Action - The action the inbound gateway will perform on messages NOT marked as spam.
- Spam Low Action - The action the inbound gateway will perform on messages with a low probability of being spam.
- Spam Medium Action - The action the inbound gateway will perform on messages with a medium probability of being spam.
- Spam High Action - The action the inbound gateway will perform on messages with a high probability of being spam.

Configuring SmarterMail for Failover

Who Should Use This

This document is intended for use by administrators deploying SmarterMail in high-volume environments and/or for organizations that want to ensure maximum uptime. It provides minimal system requirements and considerations for deploying SmarterMail in a failover environment. Note: Failover requires activation of SmarterMail Enterprise. For licensing information for this product, contact the SmarterTools Sales Department .

Failover Overview

SmarterMail Enterprise allows organizations to decrease the likelihood of service interruptions and virtually eliminate downtime by installing SmarterMail on a hot standby that is available should the primary mail server suffer a service interruption. For businesses that use their mail server as a mission-critical part of their operations, failover functionality ensures that the business continues to communicate and that productivity remains at the highest levels possible, even if there is a primary server failure.

To review the Failover Servers configured for an installation, log into SmarterMail as a System Administrator and click on Gateways / Failover in the navigation pane. Then click on Failover Servers tab .

Understanding How Failover Works

The main components of failover functionality are; a primary server that acts as the default SmarterMail server and manages the licensing of the server cluster, and a secondary server that remains connected and available in a “hot standby” mode until the primary server experiences problems with network access or system hardware.

If the primary server fails, SmarterMail can be configured to automatically enable the secondary server. When this occurs, the secondary server takes over responsibility for processing background threads and supporting all email functionality. This server will remain in active status until another failure occurs or the primary mail server comes back online.

The initial set up of SmarterMail’s failover functionality entails System Administrators manually disabling both the node and SmarterMail service on the primary server and then starting the node and SmarterMail service on the hot standby. However, system administrators can easily use third-party monitoring systems and script an automated failover and recovery strategy as needed. An example of this is provided at the end of this document.

Minimal System Requirements

- A minimum of two servers running Microsoft Windows Server 2012 R2 64-bit or higher. (Windows Server Core is not currently supported).
- Three IP addresses
- Both servers must have their server times synchronized
- A domain account or local system User or Group account with bi-directional authentication. (NOTE: SmarterMail can NOT be run using Local System, Local Service or Network Service in a failover configuration.)

- NFS/SMB share for mail and system files. We recommend that the share is running on a NAS/SAN that is configured as RAID 10

Adding Network Load Balancing to Your Servers

Note: This needs to be performed on each server that will be used in the failover environment.

- Open the server manager console
- Right click on Features in the tree view and select Add Features
- Check the box next to Network Load Balancing and select Next
- Click Install
- Once the installation finishes, click Close

Configuring the Load Balanced Cluster for Use with Failover

- Navigate to Start -> Administrative Tools -> Network Load Balancing Manager
- Click the Cluster menu item and select New
- In the New Cluster: Connect window, type the IP of your primary server in the Host: text box and select New
- When the Interface Name and Interface IP appear, select the Interface Name and click Next
- Since this is the primary node, ensure the host Priority is set to 1
- In the New Cluster: Host Parameters window, confirm the IP address and Subnet mask are correct and change the initial host state to Stopped . This is to prevent any issues with connectivity if a machine randomly reboots or suffers from a hardware failure. If all nodes are set to Started for their initial host state, traffic will be split between the two (or more) machines. Note: Monitoring software can be used to execute scripts that will start and stop hot standbys in the event of a failure and recovery. If you are not executing scripts via monitoring software then all failover will need to be handled manually.
- Click Next
- In the New Cluster: Cluster IP Addresses window, click Add and enter in your cluster IP address and the same subnet mask as in Step 6
- Select Next
- In the New Cluster: Cluster Parameters window, confirm the IP address and subnet mask, then enter a Full Internet Name , though this is optional
- Ensure the cluster operation mode is set to Multicast
- Click Next
- In the New Cluster: Port Rules window, click Edit
- If you want you can restrict the cluster IP to work on an individual port or across a port range. You can also simply allow the cluster IP to work across all ports on the server

- Ensure your port rules are set to Single Host in the Filtering Mode section
- Click OK
- Verify your settings and click Finish to complete the setup

Joining Additional Nodes to the Cluster

- From the secondary server navigate to Start -> Administrative Tools -> Network Load Balancing Manager
- Click the Cluster menu item and select Connect to Existing . Note: the existing cluster will need to be running before a secondary node can be added
- In the Connect to Existing: Connect window, enter the IP address of your existing cluster as the Host and click Connect
- Select the existing cluster that appears in the Clusters section and click Finish
- In the main Network Load Balancing Manager , expand Network Load Balancing Clusters and right click on your Cluster (it may be the IP address of your cluster) and select Add Host to Cluster
- In the Add Host to Cluster: Connect window, enter the IP address of the secondary server in the Host: section and click Connect
- When the Interface Name and Interface IP appear, select the Interface Name and click Next
- In the Add Host to Cluster: Host Parameters window, confirm the IP address and subnet mask and ensure the Initial Host State is set to Stopped . As this is the second node you're adding to your cluster, the Priority should be set at 2
- Click Next
- Just as with the primary node, in the Add Host to Cluster: Port Rules window you have the ability to set this node to respond via specific ports or a port range. If you wish to set these rules, click Edit . Otherwise, click Finish to complete the setup
- Wait for the nodes to converge and, if necessary, stop the secondary sever by right clicking the second server's name, select Control Host -> Stop

Configure a Shared Service Directory

- Using Network File Sharing (NFS) or Samba (SMB), create a shared directory named SmarterMail , preferably on a NAS or SAN. NOTE: We recommend that this shared directory be hosted on a server that utilizes a RAID 10 configuration for the data.
- Inside that new SmarterMail folder, create a Settings folder
- Configure your permissions accordingly. The SmarterMail service needs to run as a domain account or a local account with bi-directional authentication. You can configure this within the Windows Services console. When running SmarterMail with failover, Local System, Local

Service and Network Service users are not allowed. Note: When performing updates to the software, the credentials will need to be re-applied to the service

Configuring a Fresh Installation of SmarterMail for Failover

- Install and configure a primary SmarterMail server. Then, stop the service on this primary installation.
- Install another SmarterMail Enterprise instance on a second server. This new installation will be your hot standby. Leave all setup information as the default settings and after setup is complete, configure SmarterMail as an IIS site.
- Stop the SmarterMail service on the hot standby
- Edit the failover.json file in the primary server's Settings folder as follows. (Default location is C:\Program Files (x86)\SmarterTools\SmarterMail\Service\Settings.)
 - FailoverIPAddress - Set this to the IP address of the Network Load Balancer
 - IsEnabled - Set this to True
 - SharedSystemFilePath - Set to the shared network shared system folder

A sample failover.json would look like this:

```
{ "NodeID": "09190514-4535-479a-85r7-g992v44nn96f", "FailoveIPAddress":
"122.32.55.241", "IsEnabled": true, "SharedSystemFilePath":
"\\serverName\FailOverTesting\SmarterMail\Service\Settings" } NOTE:
The code should look like the above: casing, proper escaping of paths, etc.
in order for the JSON to be read properly. Also, due to size limitations,
in the sample above the SharedSystemFilePath is split across 2 lines --
that should be ONE line.
```

- Save this file, then copy it to the hot standby's Settings folder, replacing the existing failover.json
- Copy over all folders and files from C:\Program Files (x86)\SmarterTools\SmarterMail\Service\Settings to the Settings folder in the shared service directory you created
- Start the service on the hot standby server and verify that the paths are pointing to the network shared paths
- Activate your Enterprise key on the hot standby by logging into SmarterMail's management interface as the System Administrator and going to the activation section. Then stop the SmarterMail service on the server
- Start the service on the primary server, then reactivate your Enterprise license key in the SmarterMail management interface
- After re-activating the license, go to IP Addresses and bind all the ports to the load balancer's IP address and make sure no other IPs have any ports bound to them

- Both servers are now set up for failover. To verify this, log into the primary server as the System Administrator and go to Gateways / Failover . The servers that are part of the failover cluster will be displayed on the Failover Servers tab.

Adding Failover to an Existing Installation of SmarterMail

Note: You will need to configure both servers for Network Load Balancing and set up a shared service directory. See the steps outlined in the Adding Network Load Balancing to Your Servers , Configuring the Load Balanced Cluster for Use with Failover , Joining Additional Nodes to the Cluster and Configure a Shared Service Directory sections earlier in this document for more information.

- Ensure the primary server is running the latest version of SmarterMail and that it is also configured as an IIS site. Ensure the IIS binding is pointing to your cluster IP address
- Install SmarterMail on a hot standby and configure it as an IIS site. Ensure the cluster node is stopped on the hot standby and ensure the IIS binding is also pointing to the cluster IP
- Stop the SmarterMail service on the hot standby
- Copy all of your mail data (located in C:\SmarterMail\ by default) to your shared service directory. If possible, use robocopy to do this because it will not result in any downtime for the mail service
- Once robocopy finishes, run it one more time. This second pass will only copy any new data
- Stop the SmarterMail service on the primary server
- Edit the failover.json file in the primary server's Settings folder as follows:
 - FailoverIPAddress - Set this to the IP address of the Network Load Balancer
 - IsEnabled - Set this to True
 - SharedSystemFilePath - Set to the shared network shared system folder

A sample failover.json would look like this:

```
{ "NodeID": "09190514-4535-479a-85r7-g992v44nn96f", "FailoveIPAddress":
"122.32.55.241", "IsEnabled": true, "SharedSystemFilePath":
"\\serverName\FailOverTesting\SmarterMail\Service\Settings" } NOTE:
The code should look like the above: casing, proper escaping of paths, etc.
in order for the JSON to be read properly. Also, due to size limitations,
in the sample above the SharedSystemFilePath is split across 2 lines --
that should be ONE line.
```

- Copy that failover.json file, after you've edited it, and move it to the same location on the hot standby. You should replace the file on the hot standby, if it already exists.
- Run the robocopy one more time to copy over any modified files and remaining spool emails

- Copy over all folders and files from C:\Program Files (x86)\SmarterTools\SmarterMail\Service\Settings to the Settings folder in the shared service directory you created
- Edit the domains.json file in the shared Settings folder and change the path of your domains to match the new NFS\SMB path. (For example, \\NAS01\SmarterMail\Domains\mydomain.com)
- Edit the settings.json file and replace any instances of the old physical path's with your new network location for SmarterMail. (For example, if all of your data was hosted on E:\Smartermail, you would then perform a find and replace for all instances of E:\Smartermail to \\NAS01\Smartermail).
- On the primary server, go to Start -> Administrative Tools -> Network Load Balancing Manager and stop the cluster node, then start the NLB on the secondary node
- Start the SmarterMail service on the hot standby
- Access SmarterMail's web interface at the cluster IP and sign in as the System Administrator
- Activate your Enterprise key on the hot standby by logging into SmarterMail's management interface as the System Administrator and going to the Licensing section.
- Verify that the data and settings are being picked up from the shared Service directory
- Stop the SmarterMail service on the hot standby and stop the secondary cluster node
- Start the cluster node and the SmarterMail service on the primary server
- Sign into the web interface on the primary server and re-activate the Enterprise license key by going to the Licensing section.
- Verify mail data and settings are being accessed from the shared service directory

Scripting Failover

Below is an example of a PowerShell script that can be created to automate the SmarterMail failover process. You can utilize a third party monitoring product such as PRTG or SolarWinds (though there are many others) to execute this script when a failure is detected.

Prepping PowerShell on the Servers

The servers will need to be configured to run remote scripts and accept remote PowerShell sessions. Therefore, on each server, run the following commands within an elevated PowerShell console:

- Set-ExecutionPolicy RemoteSigned - Press Y to accept
- Enable-PSRemoting -force

Sample Script - Stop a Primary Server and Start the Hot Standby

In the scripts below, replace the “WAN” variable called in the `-hostname` parameter with the name of your interface. This can be obtained by opening a PowerShell console on the server and typing `Get-NlbClusterNodeNetworkInterface`. Also replace `Server01` and `Server02` with the NetBIOS names of your servers.

```
$StopPrimary = New-PSSession -ComputerName Server01 Invoke-Command -Session
$StopPrimary -ScriptBlock { Import-Module NetworkLoadBalancingClusters ;
Stop-nlbclusternode -HostName Server01 -InterfaceName "WAN" ; import-module
WebAdministration ; stop-webapppool SmarterMail; set-service -computerName
Server01 -name mailservice -status stopped ; remove-pssession Server01}
```

```
$StartSecondary = New-PSSession -ComputerName Server02 Invoke-Command -
Session $StartSecondary -ScriptBlock { Import-Module
NetworkLoadBalancingClusters ; Start-nlbclusternode -HostName Server02 -
InterfaceName "WAN" ; set-service -computerName Server02 -name mailservice
-status running ; import-module WebAdministration ; start-webapppool
SmarterMail ; remove-pssession Server02 }
```

Sample Script - Stop the Hot Standby and Re-start the Primary Server

These scripts can be used to bring the primary server back online and stop the hot standby after your monitoring software issues an all-clear.

```
$StopSecondary = New-PSSession -ComputerName Server02 Invoke-Command -
Session $StopSecondary -ScriptBlock { Import-Module
NetworkLoadBalancingClusters ; Stop-nlbclusternode -HostName Server02 -
InterfaceName "WAN" ; import-module WebAdministration ; stop-webapppool
SmarterMail; set-service -computerName Server02 -name mailservice -status
stopped ; remove-pssession Server02}
```

```
$StartPrimary = New-PSSession -ComputerName Server01 Invoke-Command -
Session $StartPrimary -ScriptBlock { Import-Module
NetworkLoadBalancingClusters ; Start-nlbclusternode -HostName Server01 -
InterfaceName "WAN" ; set-service -computerName Server01 -name mailservice
-status running ; import-module WebAdministration ; start-webapppool
SmarterMail ; remove-pssession Server01 }
```