

# Sun StorEdge™ NAS IP Aliasing

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## Introduction

When consolidating storage from multiple systems to a single Sun StorEdge™ NAS system it is sometimes desirable to have multiple IP addresses assigned to the Sun StorEdge NAS system to minimize the amount of client modifications required to access the files that are migrated to the Sun StorEdge NAS system.

With IP Aliasing up to ten IP addresses can be assigned to each NIC port with the use of IP Aliasing. This document describes the support for IP aliasing provided by the Sun StorEdge NAS system.

## IP Aliasing

Each NIC port on a Sun StorEdge NAS system can be configured with single or multiple IP addresses through IP aliasing. This first IP address is the primary IP address of this NIC port. In addition to the primary IP address, one or more IP alias addresses can be configured on the same NIC port. On a non-clustered system, up to 9 alias IP addresses can be configured on one NIC port. Here is an example of a Sun StorEdge NAS system with 2 NIC ports:

*Table 1. IP and IP Alias Assignment for Two NIC Ports*

NIC Port Number	Primary / IP Alias	IP Address Assignment
0	Primary IP Address	192.168.75.41
0	IP Alias Address # 1	192.168.75.42
0	IP Alias Address # 2	192.168.75.43
0	IP Alias Address # 3	192.168.75.44
1	Primary IP Address	192.168.98.101
1	IP Alias Address # 1	192.168.98.102
1	IP Alias Address # 2	192.168.98.103
1	IP Alias Address # 3	192.168.98.104
1	IP Alias Address # 4	192.168.98.105
1	IP Alias Address # 5	192.168.98.106
1	IP Alias Address # 6	192.168.98.107
1	IP Alias Address # 7	192.168.98.108
1	IP Alias Address # 8	192.168.98.109
1	IP Alias Address # 9	192.168.98.110

In this example, NIC port 0 has one primary IP address and configured with 3 alias IP addresses while NIC port 1 has one primary IP address and configured with 9 alias IP addresses.

For each NIC port, all alias IP addresses reside on the same physical subnet as the primary IP address.

IP aliases can be added, deleted or modified only when DHCP is disabled. Modifying the primary IP address on a NIC port of the Sun StorEdge NAS system automatically disables DHCP. If DHCP is disabled, it remains disabled.

## IP Aliasing and Failover on Sun StorEdge Clustered NAS Systems

On a Sun StorEdge Clustered NAS system, up to 4 IP alias addresses can be configured on each PRIMARY NIC port. The other 5 alias IP addresses are reserved for failover.

IP alias addresses can only be configured on a NIC port set to PRIMARY role. A NIC port set to PRIVATE or INDEPENDENT role is not allowed to have alias IP addresses.

IP Aliasing also removes the requirement of the BACKUP role on a NIC port.

In order for failover to function properly, the same number of PRIMARY role NIC ports must be configured on each head, and each PRIMARY pair must reside on the same physical subnet. The PRIMARY pair must also be of the same NIC type, either Optical or Copper, but not mixed.

Here is an example of a Sun StorEdge Clustered NAS system with a heart beat NIC port (#1) and 2 NIC ports (#2, 3) on each head. Both NIC ports # 2 and 3 are configured as PRIMARY role. Each of the port # 1 on both heads is configured as PRIVATE and cannot have alias IP address. Before failover, each of the 4 NIC ports is configured with one primary IP address and 4 alias IP addresses. Both NIC port # 2 on Head 1 and NIC port # 2 on Head 2 reside on the same subnet 157.182.53. While both NIC port # 3 on Head 1 and NIC port # 3 on Head 2 reside on the same subnet 157.199.70. Subsequent to failover, NIC port # 2 on Head 1 assumes responsibility for NIC port # 2 on Head 2's IP addresses in addition to those addresses for which it is already responsible. NIC port # 3 on Head 1 assumes responsibility for NIC port # 3 on Head 2's IP addresses.

Table 2. NIC Port IP Assignment Before and After a Cluster Failover.

IP Address Assignments Prior to Failover		IP Address Assignments After Failover (Head 2 Fails)	
Head 1		Head 2	
NIC Port 1 (Private)	10.10.10.1	NIC Port 1 (Private)	10.10.10.1
NIC Port 2 (Primary)	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17	NIC Port 2 (Primary)	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17 157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105
NIC Port 3 (Primary)	157.199.70.67 157.199.70.68 157.199.70.69 157.199.70.70 157.199.70.71	NIC Port 3 (Primary)	157.199.70.67 157.199.70.68 157.199.70.69 157.199.70.70 157.199.70.71 157.199.70.165 157.199.70.166 157.199.70.167 157.199.70.178 157.199.70.179
Head 2		Head 2	
NIC Port 1 (Private)	10.10.10.2	NIC Port 1 (Private)	10.10.10.2
NIC Port 2 (Primary)	157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105	NIC Port 2 (Primary)	Down
NIC Port 3 (Primary)	157.199.70.165 157.199.70.166 157.199.70.167 157.199.70.178 157.199.70.179	NIC Port 3 (Primary)	Down

## IP Aliasing and Port Aggregation

Port aggregation can also be enabled and configured with IP aliasing on a dual head system with gigabit NIC. A minimum of 2 gigabit NIC ports is required on each head.

When one or more ports are bonded, the DHCP on the Sun StorEdge NAS system will be disabled, even if there are un-bonded ports on the system. Removing bonded ports, however, does not alter the state of DHCP. That is, DHCP remains disabled.

In order for port aggregation to function properly, make sure all the ports on the same bond reside on the same physical subnet, connect to a switch that supports port aggregation, and connect to adjacent ports on the switch. Hubs are not supported with port aggregation.

To enable and configure port aggregation on the NIC ports, all IP alias addresses on these NIC ports must first be removed. If configured from the Web GUI, all the alias IP addresses in the newly bonded ports are removed automatically and force the Sun StorEdge NAS system to reboot. IP alias addresses may then be added to the bonded ports, if desired.

To disable port aggregation on the NIC ports, all IP alias addresses on these NIC ports must first be removed. If configured from the Web GUI, all the alias IP addresses are removed automatically on those ports to be un-bonded and the Sun StorEdge NAS system is forced to reboot. The IP alias addresses may then be added to these ports, if desired.

Here is an example of a Sun StorEdge NAS system with a heart beat NIC port (#1) and 2 additional NIC ports (#2, 3) on each head. Both NIC ports # 2 and 3 are configured as PRIMARY role. Each of the port # 1 on both heads is configured as PRIVATE and cannot have alias IP address. The ports are configured with port aggregation and all reside on the subnet 157.182.53. Before failover, NIC ports 2 and 3 on Head 1 share the same IP addresses, each configured with one primary IP address and 4 alias IP addresses. This is the same for Head 2. Subsequent to failover, Head 1 assumes responsibility for Head 2's IP addresses in addition to those addresses for which it is already responsible.

Table 3. NIC Port IP Assignment with Aggregation Before and After a Cluster Failover.

IP Address Assignments Prior to Failover		IP Address Assignments After Failover (Head 2 Fails)	
Head 1		Head 1	
NIC Port 1 (Private)	10.10.10.1	NIC Port 1 (Private)	10.10.10.1
NIC Port 2 (Primary/BOND1)	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17	NIC Port 2 (Primary/BOND1)	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17 157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105
NIC Port 3 (Secondary/BOND1)	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17	NIC Port 3 (Secondary/BOND1)	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17 157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105
BOND1	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17	BOND1	157.182.53.13 157.182.53.14 157.182.53.15 157.182.53.16 157.182.53.17 157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105
Head2		Head2	
NIC Port 1 (Private)	10.10.10.2	NIC Port 1 (Private)	10.10.10.2
NIC Port 2 (Primary/BOND1)	157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105	NIC Port 2 (Primary/BOND1)	Down
NIC Port 3 (Secondary/BOND1)	157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105	NIC Port 3 (Secondary/BOND1)	Down
BOND1	157.182.53.101 157.182.53.102 157.182.53.103 157.182.53.104 157.182.53.105	BOND1	Down

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