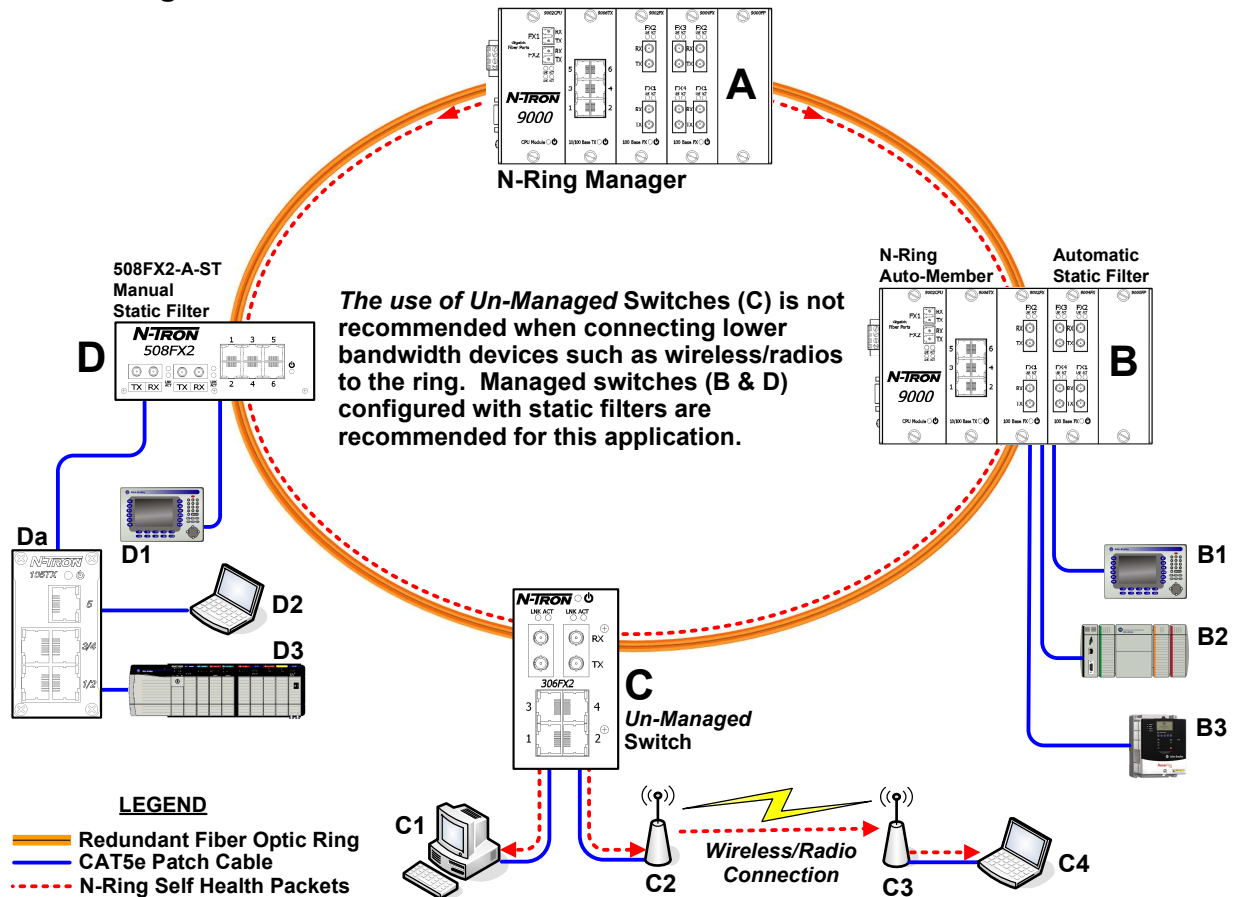


Static Filters for Ring Protocols

Our proprietary ring healing technology provides superior fast heal times for redundant ring topologies. However, the technology used by most proprietary ring managers will create additional Ethernet traffic on the ring. These frames are referred to as Self Health Packets (SHPs) and are required in order for the Ring Manager to determine the health state of the ring.

N-Tron's N-Ring



N-Tron's N-Ring technology transmits multicast packets (0107af00ded1 & 0107af00def0) from both ring ports on the Ring Manager. This method is to help protect against a single fiber strand failure. When using all N-Ring capable switches in the Ring, the Auto Ring Members will dynamically configure static filters to prevent the Self Health Packets from being flooded to the devices connected to the switch without manual static filter configuration being required.

For topologies where the redundant ring includes switches that do not natively support proprietary ring healing technology, we recommend the use of managed switches that allow configuration of static filters for 0107af00ded1 and 0107af00def0 addresses. The use of un-managed switches as ring nodes is not recommended because they do not provide the means to prevent the Ring Manager's Self Health Packets from egressing/flooding to the non-ring switch ports and devices. This may be more of a concern when connecting lower bandwidth wireless/radio equipment to nodes within the ring. Most managed switches, such as our 500 Series, when purchased with the Advanced Management Firmware (-A) option, allow for static filters to be configured on a port to port basis.

Configuring a 508FX2-A with Static Filters for use with N-Tron's N-Ring Technology

Note: 508FX2-A switches with firmware 9.00 and above are preconfigured with N-Ring SHP filters enabled by default.

(load HyperTerminal, connect standard serial cable, and supply power to switch)

Self Test & System Initialization Complete..... OK!

N-TRON Industrial Ethernet Switch - Model Number: 508FX2-A.
N-Tron firmware version: 8.XX (03)
Copyright (c) 2006 N-TRON

MAC ADDRESS: 00-07-AF-XX-XX-XX

N-View is ENABLED.
Trunking (Link Aggregation) is DISABLED.
Mirroring is DISABLED.
Tagged QOS is DISABLED.
Port QOS is DISABLED.
VLAN is DISABLED.
IGMP Snooping is ENABLED.
Aging is ENABLED.

Managing IGMP Snooping.....

Exit to return to Management Console Function.

Press [ESC] to Exit > **[ESC]**

*** Now in user interface mode. ***

IGMP Snooping & Collision filtering will resume after power is cycled.

Login - (Enter Username)> **admin [ENTER]**
Username is correct.

Login continued - (Enter Password)> **admin [ENTER]**
Password is correct.

CUSTOMER USER VALIDATED.

/ (Go to top of menu tree)
? (Show menus/commands)

info (Show identification data)
SYSTEM (Open system menu)
SWITCH (Open switch menu)

CLI> **switch [ENTER]**

/ (Go to top of menu tree)
? (Show menus/commands)

mirror (mirroring)
trunking (Assign Port Trunking Pair Groups - Link Aggregation)
qos (Quality of Service - traffic priority)
vlan (Tagged or Port Based Virtual LANs)
igmp (IGMP Snooping)
filters (Select traffic filter(s))
ports (Reconfigure Individual Port Parameters)

CLISWITCH> **filters [ENTER]**

/ (Go to top of menu tree)
? (Show menus/commands)

info (Get info on Filters)
bfilter (Configure Broadcast Filter Ports)
sfilter (Configure Static Multicast Filter)

CLI\SWITCH\FILTERS> **sfilter [ENTER]**

Enter: <(ESC)> to cancel change and keep current configuration, or
static multicast filter number (1 -> 12).

Enter 1, 2, 3, ... ,12, or <(ESC)> > **1 [ENTER]**

Enter 12 digit Address (Ex. '01005e0a0a0a<enter>'),
or all zeroes to disable the group.
or [ESC] to Exit

CLI> **0107af00ded1 [ENTER]** ← Enter the exact address shown here to filter ring packets.

Enter ports that are to receive on this multicast address:

CLI> **7 8 [ENTER]**

There is a total of 1 Static Filter Active.

CLI\SWITCH\FILTERS> **sfilter [ENTER]**

Enter: <(ESC)> to cancel change and keep current configuration, or
static multicast filter number (1 -> 12).

Enter 1, 2, 3, ... ,12, or <(ESC)> > **2 [ENTER]**

Enter 12 digit Address (Ex. '01005e0a0a0a<enter>'),
or all zeroes to disable the group.
or [ESC] to Exit

CLI> **0107af00def0 [ENTER]** ← Enter the exact address shown here to filter ring packets.

Enter ports that are to receive on this multicast address:

CLI> **7 8 [ENTER]**

There are 2 Static Filters Active at this time.

CLI\SWITCH\FILTERS> **info [ENTER]**

The General Broadcast filter is enabled now.
These ports receive General Broadcast: 1 2 3 4 5 6 7 8

There are 2 Static Filters Active at this time.

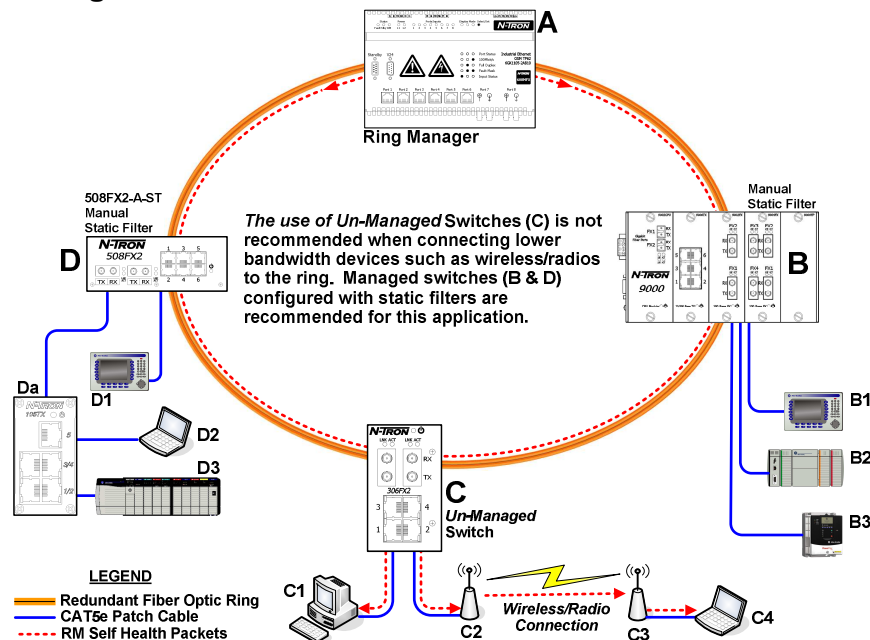
Static Address Static Member Port(s)

01-07-AF-00-DE-D1	7 8	(static filter 1)	← Verify this exact address is displayed correctly to filter ring packets.
01-07-AF-00-DE-F0	7 8	(static filter 2)	← Verify this exact address is displayed correctly to filter ring packets.

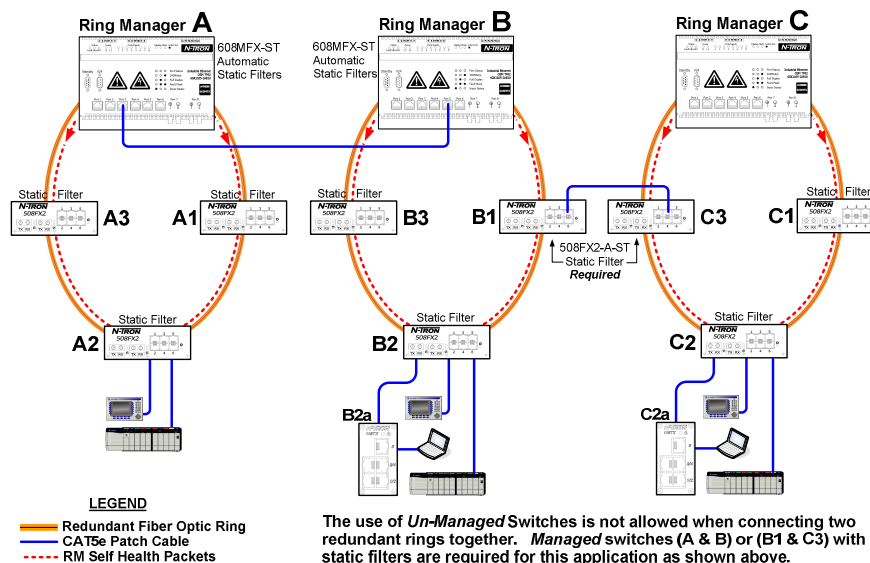
CLI\SWITCH\FILTERS>

Note: When configuration is completed, cycle switch power!

600 Series Ring Manager



When using N-Tron’s 600 Series to manage the fiber ring, we recommend the use of managed switches that allow configuration of static filters. The use of un-managed switches as ring nodes is not recommended because they do not provide the means to prevent the Ring Manager’s Self Health Packets (018063070001) from egressing/flooding to the non-ring switch ports and devices. This may be more of a concern when connecting lower bandwidth wireless/radio equipment as nodes within the ring. Most managed switches, such as our 500 Series when purchased with the Advanced Management Firmware (-A) option allow for static filters to be configured on a port to port basis.



When connecting two or more rings together using copper ports on the 600 Series Ring Managers, no manual filter configuration is required. In the event the two rings are connected together via ring member switches, the ring member switches must be similar to our 500 Series when purchased with the Advanced Management Firmware (-A) option - which allow configuration of static filters.

Configuring a 508FX2-A with Static Filters for use with N-Tron's 600 Series Ring Managers

Note: 508FX2-A switches with firmware 9.00 and above are preconfigured with 600 Series SHP filters enabled by default.

(load HyperTerminal, connect standard serial cable, and supply power to switch)

Self Test & System Initialization Complete..... OK!

N-TRON Industrial Ethernet Switch - Model Number: 508FX2-A.
N-Tron firmware version: 8.XX (03)
Copyright (c) 2006 N-TRON

MAC ADDRESS: 00-07-AF-XX-XX-XX

N-View is ENABLED.
Trunking (Link Aggregation) is DISABLED.
Mirroring is DISABLED.
Tagged QOS is DISABLED.
Port QOS is DISABLED.
VLAN is DISABLED.
IGMP Snooping is ENABLED.
Aging is ENABLED.

Managing IGMP Snooping.....

Exit to return to Management Console Function.

Press [ESC] to Exit > **[ESC]**

*** Now in user interface mode. ***

IGMP Snooping & Collision filtering will resume after power is cycled.

Login - (Enter Username)> **admin [ENTER]**
Username is correct.

Login continued - (Enter Password)> **admin [ENTER]**
Password is correct.

CUSTOMER USER VALIDATED.

/ (Go to top of menu tree)
? (Show menus/commands)

info (Show identification data)
SYSTEM (Open system menu)
SWITCH (Open switch menu)

CLI> **switch [ENTER]**

/ (Go to top of menu tree)
? (Show menus/commands)

mirror (mirroring)
trunking (Assign Port Trunking Pair Groups - Link Aggregation)
qos (Quality of Service - traffic priority)
vlan (Tagged or Port Based Virtual LANs)
igmp (IGMP Snooping)
filters (Select traffic filter(s))
ports (Reconfigure Individual Port Parameters)

CLI\SWITCH> **filters [ENTER]**

/ (Go to top of menu tree)
? (Show menus/commands)

info (Get info on Filters)
bfilter (Configure Broadcast Filter Ports)
sfilter (Configure Static Multicast Filter)

CLI\SWITCH\FILTERS> **sfilter [ENTER]**

Enter: <(ESC)> to cancel change and keep current configuration, or
static multicast filter number (1 -> 12).

Enter 1, 2, 3, ..., 12, or <(ESC)> > **1 [ENTER]**

Enter 12 digit Address (Ex. '01005e0a0a0a<enter>'),
or all zeroes to disable the group.
or [ESC] to Exit

CLI> **018063070001 [ENTER]** ← Enter the exact address shown here to filter ring packets.

Enter ports that are to receive on this multicast address:

CLI> **7 8 [ENTER]**

There is a total of 1 Static Filter Active.

CLI\SWITCH\FILTERS> **info [ENTER]**

The General Broadcast filter is enabled now.
These ports receive General Broadcast: 1 2 3 4 5 6 7 8

There are 1 Static Filters Active at this time.

Static Address	Static Member Port(s)
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01-80-63-07-00-01	7 8 (static filter 1)
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 ← Verify this exact address is displayed correctly to filter ring packets.

CLI\SWITCH\FILTERS>

Note: When configuration is completed, cycle switch power!