

***ClearOne***<sup>®</sup>



**StreamNet**<sup>®</sup>

**SWITCH CONFIGURATION SETTINGS GUIDE**

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## **STREAMNET SWITCH CONFIGURATION SETTINGS GUIDE**

### **CLEARONE DOCUMENT**

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## SERVICE AND SUPPORT

# Switch Configuration Settings

## INTRODUCTION

This StreamNet Switch Configuration Settings Guide is intended to help you design, setup and deploy a successful StreamNet system. The configuration settings prescribed in the next few sections will allow a reliable StreamNet deployment and quality of service for all your AVoIP requirements.

In the next sections of this guide we have information about each switch series for correct switch manufacture firmware, the recommended switch access ports and uplink settings, our best practice recommendations, and specific CLI commands for configuration of the required switch services.

In order for a successful deployment and reliable IP data infrastructure the firmware, and settings are required for proper QoS and StreamNet system performance. Any deviations from these settings should only be made by certified and trained IT professionals who are familiar with the StreamNet AVoIP solution and the QoS requirements.

The best practices are also strongly recommended, but are not always required for a reliable and proper QoS and StreamNet system performance.

ClearOne technical support teams are here to help you with your designs at [techsales@clearone.com](mailto:techsales@clearone.com) or by phone at 1-800-705-2103

For any trouble shooting or installed product issues please contact [tech.support@clearone.com](mailto:tech.support@clearone.com) or by phone at 1-800-283-5936

We can only provide support for ClearOne products and ClearOne purchased switch infrastructure. We do not have the ability to provide technical support for any other switch infrastructure and we have designed several documents to help you configure non-ClearOne switch products to accommodate a reliable StreamNet deployment.

- StreamNet Infrastructure Design Guide
- StreamNet Pre-Site Configuration Check List
- StreamNet Switch Configuration Setting Guide (This document)

You can find these documents at [www.ClearOne.com](http://www.ClearOne.com) and [www.NetStreams.com](http://www.NetStreams.com)

## 3524 - 3548 Implementation



### DELL 3524 - 3548 SWITCH SETTINGS

- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)
- Set the “Bridge Multicast Unregistered-filtering” function to forbid Forwarding-unregistered-multicast-addresses.
- Turn on IP IGMP v2 or v3 Querying, set the Query Interval, Snooping and set Interval and Leave Time.
- Turn off STP (Spanning Tree Protocol)
- Turn on Multicast Filtering.
- Configure Switchport Access for VLAN and Mode.

### ACCESS PORTS:

- Turn on IP IGMP Snooping.
- Turn on IP IGMP Immediate-Leave
- Turn off STP (Spanning Tree Protocol)

### SWITCH UPLINKS:

- Turn off IP IGMP Immediate-Leave
- Create an ACL (Access Control List) that blocks IP IGMP on the switch port used to connect the StreamNet switches to a host network.

### BEST PRACTICES:

- Review IP IGMP Query and Election processes before configuring switches.
- Create a separate VLAN for all StreamNet devices.
- Create an ACL (Access Control List) that blocks IP IGMP on the switch port used to connect the StreamNet switches to a host network.

## DELL 3524 – 3548 CLI COMMANDS FOR CONFIGURING THE SERVICES.

- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)

Configure

```
interface vlan 1
```

```
ip address 10.1.0.1 255.0.0.0 (any IP Address and Subnet can be used)
```

- Set the “Bridge Multicast Forbidden Forward-unregistered” function to forbid Forwarding-un-registered-multicast-addresses.

Configure

```
Interface range Ethernet all
```

```
bridge multicast forbidden forward-unregistered
```

- Turn on IP IGMP Snooping querier and set Leave Time

Configure

```
ip igmp snooping
```

```
interface vlan 1
```

```
ip igmp snooping querier enable
```

```
ip igmp snooping leave-time-out immediate-leave
```

- Turn off STP (Spanning Tree Protocol)

Configure

```
no spanning-tree
```

- Turn on Multicast Filtering.

Configure

```
bridge multicast filtering
```

- Configure Switchport Access and Mode for VLAN.

Configure

```
interface range ethernet all
```

```
switchport access vlan 1
```

```
switchport mode access
```

## 5424 - 5448 Implementation



### FIRMWARE AND BOOT CODES

SW version 2.0.0.36

Boot Version 2.0.0.0

Both Firmware and Boot Code can be requested from ClearOne Technical Support.

### DELL 5424 - 5448 SWITCH SETTINGS

- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)
- Set the “Bridge Multicast Unregistered-filtering” function to forbid Forwarding-unregistered-multicast-addresses.
- Turn on IP IGMP v2 or v3 Querying, set the Query Interval, Snooping and set Interval and Leave Time.
- Turn off STP (Spanning Tree Protocol)
- Turn on Multicast Filtering.
- Turn on Jumbo Frame Support (only needed with uncompressed streams). StreamNet stream packets are MTU 4096.
- Configure Switchport Access for VLAN and Mode.

### ACCESS PORTS

- Turn on IP IGMP Snooping.
- Turn on IP IGMP Immediate-Leave or Fast-Leave
- Turn off STP (Spanning Tree Protocol)

### SWITCH UPLINKS

- Turn off IP IGMP Immediate-Leave
- Create an ACL (Access Control List) that blocks IP IGMP on the switch port used to connect the switches to a host network.

### BEST PRACTICES

- Review IP IGMP Query and Election processes before configuring switches.
- Create a separate VLAN for all StreamNet devices.
- Create an ACL (Access Control List) that blocks IP IGMP on the switch port used to connect the switches to a host network.

## DELL 5424 - 5448 CLI COMMANDS FOR CONFIGURING THE SERVICES

- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)

Configure

```
interface vlan 1
```

```
ip address 10.1.0.1 255.0.0.0 (any IP Address and Subnet can be used)
```

- Set the “Bridge Multicast Forbidden Forward-unregistered” function to forbid Forwarding-un-registered-multicast-addresses.

Configure

```
Interface range Ethernet all
```

```
bridge multicast forbidden forward-unregistered
```

- Turn on IP IGMP Snooping querier and set Leave Time

Configure

```
ip igmp snooping
```

```
interface vlan 1
```

```
ip igmp snooping querier enable
```

```
ip igmp snooping leave-time-out immediate-leave
```

- Turn off STP (Spanning Tree Protocol)

Configure

```
no spanning-tree
```

- Turn on Multicast Filtering.

Configure

```
bridge multicast filtering
```

- Turn on Jumbo Frame Support (only needed with uncompressed streams). StreamNet stream packets are MTU 4096.

Configure

```
Port jumbo-frame
```

- Configure Switchport Access and Mode for VLAN.

Configure

```
interface range ethernet all
```

```
switchport access vlan 1
```

```
switchport mode access
```

## 5524 - 5548 Switch Implementation



### FIRMWARE AND BOOT CODES

Both Firmware and Boot Code can be requested from ClearOne Technical Support.

### DELL 5524 - 5548 SWITCH SETTINGS

- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)
- Set the “Bridge Multicast Unregistered-filtering” function to forbid Forwarding-Unregistered-Multicast-Addresses.
- Turn on IP IGMP v2 or v3 Querying, set the Query Interval, Enable IGMP Snooping and set Leave Time.
- Turn off STP (Spanning Tree Protocol)
- Turn on Multicast Filtering.
- Turn on Jumbo Frame Support (only needed with uncompressed streams). StreamNet stream packets are MTU 4096.
- Configure Switchport Access for VLAN and Mode.

### ACCESS PORTS

- Turn on IP IGMP Snooping.
- Turn on IP IGMP Immediate-Leave or Fast-Leave
- Turn off STP (Spanning Tree Protocol)

### SWITCH UPLINKS

- Turn off IP IGMP Immediate-Leave
- Create an ACL (Access Control List) that blocks IP IGMP on the switch port used to connect the switches to a host network.

### BEST PRACTICES

- Review IP IGMP Query and Election processes before configuring switches.
- Create a separate VLAN for all StreamNet devices.
- Create an ACL (Access Control List) that blocks IP IGMP on the switch port used to connect the switches to a host network.

## DELL 5524 - 5548 CLI COMMANDS FOR CONFIGURING THE SERVICES

- Turn off STP (Spanning Tree Protocol)  
Configure  
    No Spanning-Tree
- Turn on Multicast Filtering.  
Configure  
    Bridge Multicast Filtering
- Turn on Switch IGMP Snooping  
Configure  
    IP IGMP Snooping
- Turn on Jumbo Frame Support (only needed with uncompressed streams). StreamNet stream packets are MTU 4096.  
Configure  
    Port Jumbo-Frame
- Turn on IP Routing  
Configure  
    IP Routing
- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)  
Configure  
    interface vlan 1  
        ip address 10.1.0.1 255.0.0.0 (any IP Address and Subnet can be used)
- Turn on IP IGMP Snooping, Snooping querier and set Leave Time for VLAN  
Configure  
    IP IGMP snooping  
    IP IGMP snooping vlan 1 querier  
    IP IGMP snooping vlan 1 immediate-leave  
    IP IGMP query-interval 125
- Configure Switchport Access and Mode for VLAN.  
Configure  
    Interface range gigabitethernet 1/0/1-XX  
        (XX= Switch Ports, default is All Ports 24 or 48)  
    switchport access vlan 1  
    switchport mode access

- Set the “Bridge Multicast Forbidden Forward-unregistered” function to forbid Forwarding-unregistered-multicast-addresses.

Configure

```
Interface range Ethernet all
```

```
bridge multicast forbidden forward-unregistered
```

### **STREAMNET PORT UPLINK ACL FOR DELL 5424 AND 5448 SWITCHES**

```
enable
```

```
configure
```

```
interface ethernet g1
```

```
no service-acl input
```

```
exit
```

```
no ip access-list uplink
```

```
ip access-list uplink
```

```
deny-igmp any any any
```

```
permit any any any
```

```
interface ethernet g1
```

```
service-acl input uplink
```

```
exit
```

```
exit
```

```
copy run start
```

```
y
```

## 6224 - 6248 Implementation



### DELL 6224 - 6248 SWITCH SETTINGS

- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)
- Set the “Bridge Multicast Forbidden Forward-Unregistered” function to forbid Forwarding-Unregistered-Multicast-Addresses.
- Set the “Network Directed Broadcast” function to forward Broadcast commands.
- Turn on IP IGMP v2 or v3 Querying and set the Query Interval.
- Turn on IP IGMP v2 or v3 Snooping, set Interval and Leave Time
- Turn on IP Routing.
- Turn off STP (Spanning Tree Protocol) or set STP to Rapid Mode.
- Turn on Multicast Filtering.
- Turn on Jumbo Frame Support (only needed with uncompressed streams). StreamNet stream packets are MTU 4096.
- Configure Switchport Access for VLAN and Mode.
- Turn off IP IGMP Snooping TCN Flooding.

### ACCESS PORTS

- Turn on Switchport Host Mode.
- Turn on IP IGMP Snooping.
- Turn on IP IGMP Immediate-Leave or Fast-Leave.
- Turn off STP (Spanning Tree Protocol) or set STP to rapid mode.
- Turn off IP IGMP Snooping TCN Flooding.

### SWITCH UPLINKS

- Turn off IP IGMP Immediate-Leave or Fast-Leave.

### BEST PRACTICES

- Review IP IGMP Query and Election processes before configuring switches.
- Create a separate VLAN for all StreamNet devices.
- Create an ACL (Access Control List) that blocks IP IGMP on the switch port used to connect the StreamNet switches to a host network.

## DELL 6224 - 6248 CLI COMMANDS FOR CONFIGURING THE SERVICES

- Create VLAN and set the Switch or VLAN IP address (StreamNet devices should reside on same VLAN)

Configure

```
vlan database
```

```
    vlan 2    (any VLAN number can be used)
```

```
    exit
```

```
interface vlan 2
```

```
    ip address 10.1.0.1 255.0.0.0    (any IP Address and Subnet can be used)
```

- Set the “Bridge Multicast Forbidden Forward-unregistered” function to forbid Forwarding-unregistered-multicast-addresses.

Configure

```
interface vlan 2
```

```
    bridge multicast forbidden forward-unregistered
```

- Set the “Network Directed Broadcast” function to forward Broadcast commands.

Configure

```
interface vlan 2
```

```
    routing
```

```
    ip netdirbcast
```

- Turn on IP IGMP v2 or v3 Querying and set the Query Interval.

Configure

```
interface vlan 2
```

```
    ip igmp
```

```
    ip igmp version 2
```

```
    ip igmp query-interval 125
```

- Turn on IP IGMP v2 or v3 Snooping, set Interval and Leave Time

Configure

```
ip igmp snooping
```

```
ip igmp snooping querier
```

```
ip igmp snooping querier version 2
```

```
ip igmp snooping querier query-interval 125
```

```
interface range ethernet all
```

```
    ip igmp snooping leave-time-out immediate-leave
```

- Turn on IP Routing.

Configure

```
Ip routing
```

- Turn off STP (Spanning Tree Protocol) *or* set STP to rapid mode.  
Configure  
    no spanning-tree  
    *or*  
    spanning-tree mode rstp
- Turn on Multicast Filtering.  
Configure  
    bridge multicast filtering
- Turn on Jumbo Frame Support (only needed with uncompressed streams). StreamNet stream packets are MTU 4096.  
Configure  
    interface range ethernet all  
        mtu 4096
- Configure Switchport Access and Mode for VLAN.  
Configure  
    interface range ethernet all  
        switchport access vlan 2

# Service and Support

If you need assistance setting up or operating your product, please contact us. We welcome your comments so we can continue to improve our products and better meet your needs.

## TECHNICAL SUPPORT

Telephone: 1.800.283.5936  
E-mail: tech.support@ClearOne.com  
Web site: www.ClearOne.com, www.NetStreams.com

## SALES

Telephone: 1.800.707.6994  
E-mail: sales@ClearOne.com

## TECHSALES

Telephone: 1.800.705.2103  
E-mail: techsales@ClearOne.com

## PRODUCT RETURNS

All product returns require a Return Material Authorization (RMA) number. Contact ClearOne Technical Support before returning your product. Make sure you return all the items and packing materials that originally shipped with your product.

## CLEARONE LOCATIONS

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