



## MFC-OG3-N and MFC-8322-S User Guide

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# MFC-OG3-N and MFC-8322-S · User Guide

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- Revision: 2
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- Software Version: 3.07

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Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

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## Safety Notices

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This product has been determined to be compliant with the applicable standards, regulations, and directives for the countries where the product is marketed.

Compliance documentation, such as certification or Declaration of Compliance for the product is available upon request by contacting [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com). Please include the product; model number identifiers and serial number and country that compliance information is needed in request.

## EMC Notices

### US FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules.

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These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



**Notice** — *Changes or modifications to this equipment not expressly approved by Ross Video Ltd. could void the user's authority to operate this equipment.*

#### Canada

This Class "A" digital apparatus complies with Canadian ICES-003 and part 15 of the FCC Rules.

Cet appareil numerique de la classe "A" est conforme a la norme NMB-003 du Canada.

#### European Union

This equipment is in compliance with the essential requirements and other relevant provisions established under regulation (EC) No 765/2008 and Decision No 768/2008/EC referred to as the "New Legislative Framework".



**Warning** — *This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.*

#### Australia/New Zealand

This equipment is in compliance with the provisions established under the Radiocommunications Act 1992 and Radiocommunications Labeling (Electromagnetic Compatibility) Notice 2008.

#### Korea

This equipment is in compliance with the provisions established under the Radio Waves Act.

Class A equipment (Broadcasting and communications service for business use)

This device is a business-use (Class A) EMC-compliant device. The seller and user are advised to be aware of this fact. This device is intended for use in areas outside home.

Type of Equipment	User's Guide
A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
Class A Equipment (Industrial Broadcasting & Communication Equipment)	This equipment is <b>Industrial (Class A) electromagnetic wave suitability equipment</b> and seller or user should take notice of it, and this equipment is to be used in the places except for home.

#### International

This equipment has been tested under the requirements of CISPR 22:2008 or CISPR 32:2015 and found to comply with the limits for a Class A Digital device.



**Notice** — *This is a Class A product. In domestic environments, this product may cause radio interference, in which case the user may have to take adequate measures.*

## Maintenance/User Serviceable Parts

Routine maintenance to this openGear product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the **“Contact Us”** section of this manual. All openGear products are covered by a generous 5-year warranty and will be repaired without charge for materials or labor within this period. See the **“Warranty and Repair Policy”** section in this manual for details.

## Environmental Information

The equipment may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.



If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration. You can also contact Ross Video for more information on the environmental performances of our products.

## Security and Privacy

If you would like more information on how Ross Video security and privacy practices have been applied to the MFC-OG3-N and MFC-8322-S, what you should know about maintaining security of this product, and how we can partner with you to ensure security throughout this product's life-cycle, contact [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com).

Ross Video has implemented reasonable administrative, technical, and physical safeguards to help protect against security incidents and privacy breaches involving a Ross Video product provided those products are used in accordance with Ross Video instructions for use. However, as systems and threats evolve, no system can be protected against all vulnerabilities and we consider our customers the most important partner in maintaining security and privacy safeguards. If you have any concerns, we ask that you bring them to our attention, and we will investigate. Where appropriate, we will address the issue with product changes, technical bulletins and/or responsible disclosures to customers and regulators. Ross Video continuously strives to improve security and privacy throughout the product life-cycle using practices such as:

- Privacy and Security by Design
  - Product and Supplier Risk Assessment
  - Vulnerability and Patch Management
  - Secure Coding Practices and Analysis
  - Vulnerability Scanning
  - Access Controls appropriate to Customer Data
  - Incident Response
  - Clear paths for two-way communication between customers and Ross Video
-

If you would like to report a potential product related privacy or security issue (incident, breach, or vulnerability), contact [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com).

## Company Address



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# Introduction

This guide provides an overview of the MFC-OG3-N and MFC-8322-S Network Controller Cards. The following chapters are included:

- **“Introduction”** summarizes the guide and provides important terms, and conventions.
- **“Before You Begin”** provides general information to keep in mind before installing and configuring your MFC-OG3-N and MFC-8322-S.
- **“MFC-OG3-N Overview”** provides an overview of the MFC-OG3-N hardware components.
- **“MFC-8322-S Overview”** provides an overview of the MFC-8322-S hardware components.
- **“Physical Installation”** provides instructions for the physical installation of the MFC-OG3-N and MFC-8322-S card and its rear module into an openGear frame.
- **“Configuring the Network Settings”** provides information for launching DashBoard, and configuring the network settings via DashBoard and/or the DIP Switches.
- **“Using a Master Password”** provides information on implementing a master password for your openGear frame.
- **“Configuring the Security Settings”** provides instructions for disabling services (e.g. SNMP Daemon, SSH login, SLP Daemon) to secure the openGear frame.
- **“Enabling SNMP Support”** provides instructions for enabling SNMP support and configuring the SNMP Agent via DashBoard. This chapter only applies if you are using an MFC-OG3-N.
- **“DataSafe”** provides instructions for managing openGear card settings via the DataSafe feature. This chapter only applies to the MFC-OG3-N with the DataSafe feature enabled.
- **“Configuring the Frame Glow”** provides instructions to configure the Frame Glow function of the OGX-FR frame.
- **“Upgrading the Software”** provides instructions for upgrading the MFC-OG3-N and MFC-8322-S software via DashBoard.
- **“DashBoard Interface Overview”** summarizes the menus and parameters of the MFC-OG3-N and MFC-8322-S tabs in DashBoard.
- **“Service Information”** provides information on the warranty and repair policy for your MFC-OG3-N and MFC-8322-S.
- **“Glossary”** provides a list of terms used throughout this guide.

## Related Publications

It is recommended to consult the following Ross documentation before installing and configuring your MFC-OG3-N and MFC-8322-S:

- ***DashBoard User Guide***, Ross Part Number: 8351DR-004
- ***OGX-FR Series Quick Start Guide***, Ross Part Number: 8322DR-202
- ***OGX-FR Series User Guide***, Ross Part Number: 8322DR-204

## Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

## Interface Elements

Bold text is used to identify a user interface element such as a dialog box, menu item, or button. For example:

In the **Network** tab, click **Apply**.

## User Entered Text

Courier text is used to identify text that a user must enter. For example:

In the **Language** box, enter **English**.

## Referenced Guides

Text set in bold and italic represent the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the ***OGX-FR Quick Start Guide***.

## Menu Sequences

Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example, if a step reads "**File** > **Save As**," you would click the **File** menu and then click **Save As**.

## Important Instructions

Star icons are used to identify important instructions or features. For example:

- ★ Contact your IT department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP Address, Subnet Mask, and Gateway for your device.

## Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

- **Technical Support:** (+1) 613-652-4886
- **After Hours Emergency:** (+1) 613-349-0006
- **E-mail:** [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com)
- **Website:** <http://www.rossvideo.com>

# Before You Begin

If you have questions pertaining to the operation of MFC-OG3-N and MFC-8322-S, please contact us at the numbers listed in “**Contacting Technical Support**”. Our technical staff is always available for consultation, training, or service.

## Overview

The MFC-OG3-N and MFC-8322-S are designed for the openGear frames and offer a range of monitoring and control options based on the card model.

**Table 1 Feature Comparison Chart**

Features	Model	
	8322-S	OG3-N
Compatible with the DFR-8310 series frames		
Compatible with the DFR-8321 series frames		
Compatible with the OG3-FR series frames	✓	✓
Compatible with the OGX-FR series frames	✓	✓
Monitors frame power usage, the inlet ambient temperature, the airflow requirements of high-powered cards, and sets the fan speed accordingly <sup>a</sup>	✓	✓
Monitors the frame door and each frame power supply	✓	✓
Monitors the fan door and notifies the user if the door is left open too long	✓	✓
Monitors the status of other cards in the frame via the internal bus	✓	✓
Supports the DataSafe feature in DashBoard		✓
Generates alarms if any of the monitored functions develop errors	✓	✓
Network settings <sup>b</sup> storage location	On the GFC-8322 Reference card	
Provides SNMP Monitoring (software option)		✓
Provides external 10/100Mbps ethernet connectivity to communicate with DashBoard	✓	✓
Provides external 1000Mbps ethernet connectivity to communicate with DashBoard		✓
Provides internal 1000BASE-X Ethernet links to all 20 slots for high speed communication between cards		✓
Supports more than one concurrent TCP Control connections, such as DashBoard, or a control panel		✓
5-year transferable warranty	✓	✓

- a. Higher power consumption requires higher fan speed for adequate cooling. The fans always run at maximum speed for 5 seconds after the fan door is closed, then adjust to the appropriate level based on power consumption and the inlet ambient temperature.
- b. Saves items configured on the Network tab plus the Frame Name.

## User Interfaces

Your Network Controller Card may include the following interfaces.

### DashBoard Control System

The DashBoard Control System enables you to monitor and control openGear frames and cards from a computer. DashBoard communicates with other cards in the openGear frames through the Network Controller Cards. The DashBoard software and user guide are available for download from our website.

#### For More Information on...

- installing and using DashBoard, refer to the ***DashBoard User Guide***.
- the DashBoard menus for your card, refer to **"DashBoard Interface Overview"**.

### Card-edge Controls

The front-edge of the Network Controller Card features LED indicators for the power, ethernet connection, and general communication activity. The Network Controller Card also includes DIP switches for specifying the IP address of the frame.

#### For More Information on...

- the specific front-edge controls, refer to the applicable chapter in this manual.

### SNMP Monitoring and Control

The Network Controller Card can provide optional support for remote monitoring of your openGear frame and using the Simple Network Management Protocol (SNMP). This protocol is compatible with many third-party monitoring and control tools.

#### For More Information on...

- SNMP monitoring and control, refer to **"Enabling SNMP Support"**.
- SNMP controls for your openGear card, refer to the Management Information Base (MIB) file for your card.

# MFC-OG3-N Overview

This chapter provides an overview of the card-edge controls of the MFC-OG3-N Network Controller Card. The MFC-OG3-N brings GigE ethernet connectivity to the OGX-FR frames infrastructure, providing a DashBoard interface to monitor openGear cards in the frame.



**Caution** — You must install the MFC-OG3-N into an OG3-FR or OGX-FR series frame. Attempting to install these cards in another frame type can damage your card.

## Card-edge Controls for the MFC-OG3-N

This section provides information on the jumpers, buttons and LEDs for the MFC-OG3-N. Refer to **Figure 1** for the location of the card-edge features.

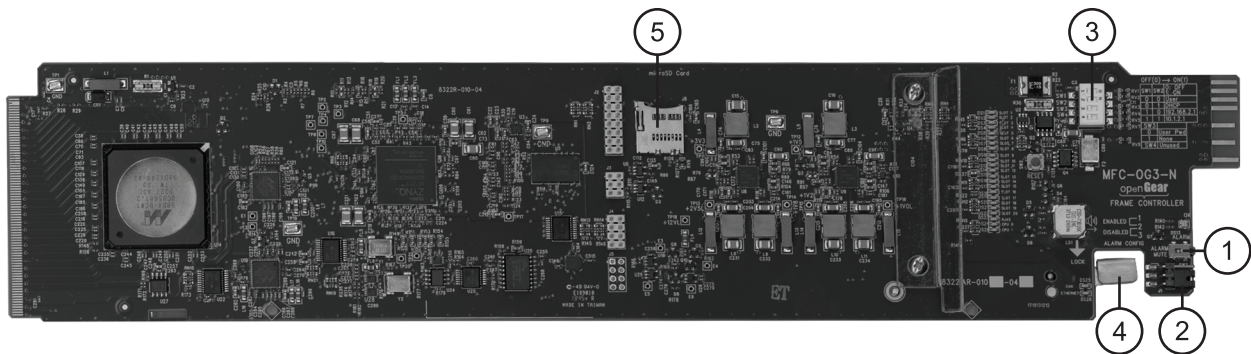


Figure 1 MFC-OG3-N — Card Control Locations

### 1. Alarm Mute Button

The **Alarm Mute** button on the card-edge mutes the audio alarm for two minutes. If a fault condition is still present when the mute time-out ends, the card re-activates the audio alarm. Pressing and holding this button, while powering on the frame or installing the card, will enable emergency booting as described in “**MFC-OG3-N Troubleshooting Tips**”.

### 2. Alarm Config Jumper

The **Alarm Config** jumper enables or disables the audio alarm signal. The **ALARM** LED is still lit if alarm conditions are occurring, but the audio will be off. Refer to **Figure 2** and the card labeling for jumper positions.

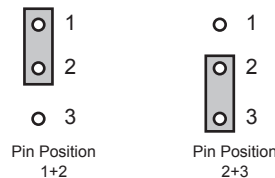


Figure 2 Alarm Config Jumper — Pin Positions

- › **Enabled** — To enable the alarm feature, set the jumper into **Position 1+2**.
- › **Disabled** — To disable the alarm feature, set the jumper into **Position 2+3**.

### 3. DIP Switches

**SW1** and **SW2** are used in conjunction with the DashBoard menus to set the IP Address of the card. Refer to “**SW1, SW2 — IP Address Setup**” for details.

**SW3** is used to override the Master Password for the frame. Refer to “**SW3 — Master Password Override**” for details.

#### 4. Card Lock

This lock located near the front edge of the card is used to secure the card in its frame slot.

#### 5. Micro SD Card Slot

This slot is used in the case of a software upgrade failure and under the guidance of Ross Technical Support. This slot is not populated with an SD Card when shipped from the factory.

## Configuring the DIP Switches

This section briefly summarizes the **DIP Switch** settings on the card. Refer to **Figure 1** for the locations. Note that **Figure 3** shows the DIP Switches in the **ON** position.

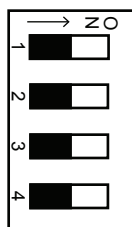


Figure 3 DIP Switches — Set to the ON Positions

### SW1, SW2 — IP Address Setup

**SW1** and **SW2** are used in conjunction with the DashBoard menus to set the IP Address of the card. Refer to **Table 2** and the card labeling for DIP Switch positions. For more information on configuring the network settings for your card, refer to “**Configuring the Network Settings**”.

Table 2 SW1 and SW2 Positions

SW1 Position	SW2 Position	Controlled via DashBoard	Descriptions
OFF	OFF	✓	The card network settings can be set by the user from the DashBoard <b>Network</b> tab <sup>a</sup> . (default)
OFF	ON		The card network settings are automatically assigned (DHCP Mode).
ON	OFF		The card IP Address is set to 192.168.2.1 The card Subnet Mask is set to 255.255.255.0.
ON	ON		The card IP Address is set to 10.1.2.1. The card Subnet Mask is set to 255.255.255.0.

a. DHCP Mode is assumed until the user changes the settings in DashBoard.



## SW3 — Master Password Override

**SW3** is used to override the Master Password. The Master Password feature limits the card to support only authenticated connections. Refer to “**Configuring the Master Password in DashBoard**” for details.

- **OFF** — This is the recommended position. A user-specified Master Password is used. The default password is **password**. It is recommended to change the password as outlined in “**Configuring the Master Password in DashBoard**”.
- **ON** — This position is used to recover a lost Master Password. The user-specified password is temporarily ignored, and the default value of **password** is used.

## SW4

**SW4** is not implemented at this time and should be left in the **OFF** position.

## Monitoring the MFC-OG3-N

The front-edge of the card has LED indicators for indicating alarms, and communication activity. (Figure 4)

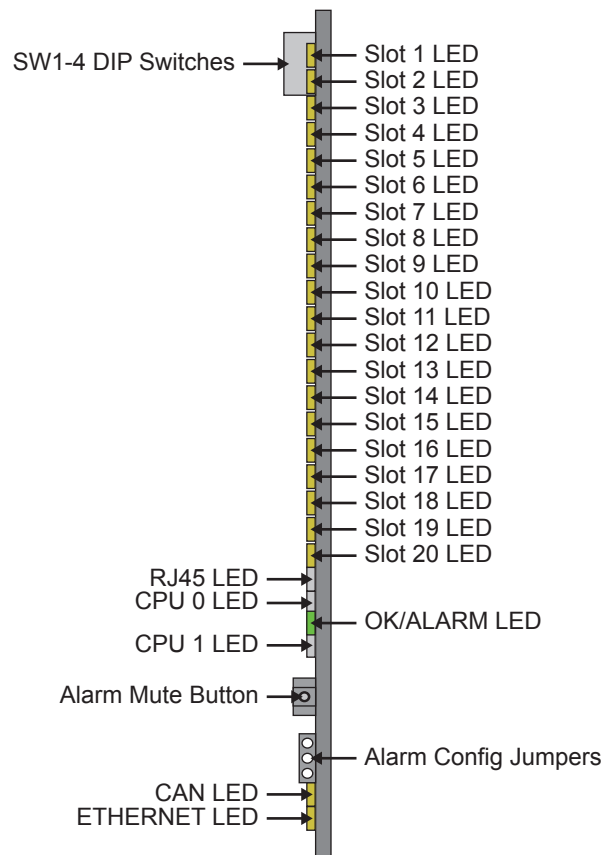


Figure 4 MFC-OG3-N Card-edge Features

**Table 3** provides information on the LED displays.

**Table 3 MFC-OG3-N and MFC-8322-S LED Descriptions**

LED	Color	Description
<b>Slot #</b>	Yellow	When lit, this LED indicates that the ethernet link to the specified frame slot is established (link is up).
	Flashing Yellow	When flashing, this LED indicates the ethernet link is established, and communication is currently taking place.
	Off	When off, this LED indicates that the ethernet link to the specified frame slot is unavailable (link is down).
<b>RJ45</b>	This LED reports the same information as the ETHERNET LED.	
<b>OK/ALARM<sup>a</sup></b>	Green	When lit green, this LED indicates the card is operating correctly.
	Flashing Green	When flashing, this LED indicates a DataSafe mismatch.
	Red	When lit red, this LED indicates: <ul style="list-style-type: none"> <li>• the card is booting, or</li> <li>• a major alarm condition is occurring in the frame such as the frame door has been left open too long.</li> </ul>
<b>CPU #</b>	Yellow	When lit, this LED indicates that the Ethernet link to the internal GigE switch is established (link is up).
	Flashing Yellow	When lit, this LED indicates that communication activity is occurring on the internal GigE switch.
	Off	When off, this LED indicates the Ethernet link to the internal GigE switch is unavailable (link is down).
<b>CAN</b>	Flashing Yellow	When flashing yellow, this LED indicates the card is communicating, over the CAN bus, with the other cards within the frame.
	Off	When off, this LED indicates an absence of incoming messages.
<b>ETHERNET</b>	Yellow	When lit yellow, this LED indicates a valid Ethernet connection but is not receiving messages from DashBoard, a control panel, or an external SNMP agent.
	Flashing Yellow	When flashing yellow, this LED indicates the card is communicating over the Ethernet connection to DashBoard, a control panel, or an external SNMP agent.
	Off	When off, this LED indicates an absence of Ethernet connection.

a. This LED reports the most severe condition.

## Ethernet Switch Monitoring

The MFC-OG3-N provides monitoring of its internal 1000BASE-X Ethernet link via the **Network** setup tab in DashBoard. Each frame slot is monitored separately for loss of link, communication speed, and when a network loop is detected within the cards in the openGear frame. Note that when a loop is detected, the MFC-OG3-N automatically disables the internal port on the card in that

slot until a loop is no longer detected. The MFC-OG3-N also reports the connection speed of the Ethernet port on the frame chassis.

**For More Information on...**

- whether your openGear card provides an internal link to the ethernet switch of the MFC-OG3-N, refer to the manual that accompanied your card.
- ethernet switch status fields of the MFC-OG3-N, refer to **“Status Tabs”**.

## **SNMP Monitoring on the MFC-OG3-N**

The MFC-OG3-N provides optional support for remote monitoring and control of your frame and openGear cards using SNMP (Simple Network Management Protocol), which is compatible with many third-party monitoring and control tools. You must obtain a license key from your openGear sales representative to enable SNMP support on your card.

**For More Information on...**

- enabling and configuring the SNMP Agent for your MFC-OG3-N, refer to **“Enabling SNMP Support”**.



# MFC-8322-S Overview

This chapter provides information on the card-edge controls of the MFC-8322-S Controller Card.



**Caution** — You must install the MFC-8322-S into an OG3-FR or OGX-FR series frame. Attempting to install the MFC-8322-S in another frame type can damage your card.

## Card-edge Controls for the MFC-8322-S

This section provides information on the jumpers, buttons and LEDs for the MFC-8322-S. Refer to **Figure 5** for the location of card control features such as the **Alarm Mute** button, and the **Alarm Config** jumpers.

★ The MFC-8322-S provides a single DashBoard connection.

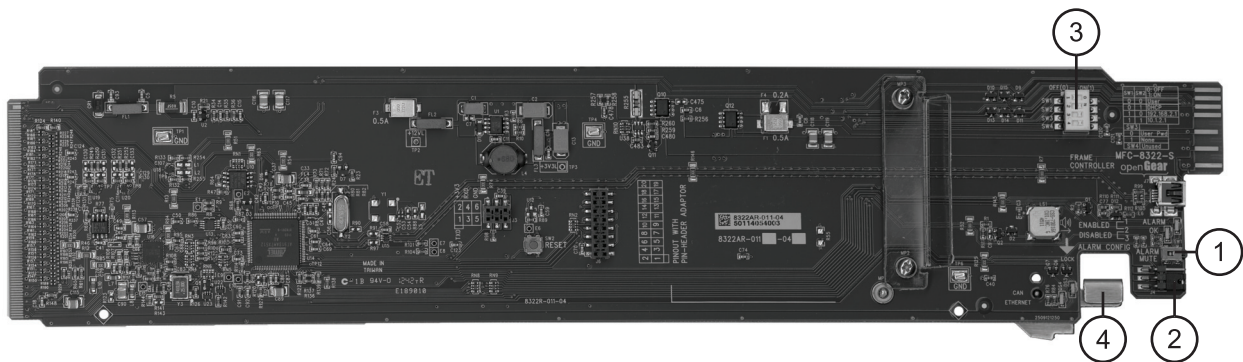


Figure 5 MFC-8322-S Card Controls

### 1. Alarm Mute Button

The **Alarm Mute** button on the card-edge of the MFC-8322-S mutes the audio alarm for two minutes. If a fault condition is still present when the mute time-out ends, the card re-activates the audio alarm.

### 2. Alarm Config Jumper

The **Alarm Config** jumper enables or disables the audio alarm signal. The **ALARM** LED is still lit if alarm conditions are occurring, but the audio will be off. Refer to **Figure 6** and the card labeling for jumper positions.

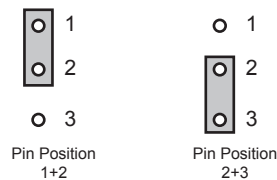


Figure 6 Alarm Config Jumper — Pin Positions

- › **Enabled** — To enable the alarm feature, set the jumper into **Position 1+2**.
- › **Disabled** — To disable the alarm feature, set the jumper into **Position 2+3**.

### 3. DIP Switches

**SW1** and **SW2** are used in conjunction with the DashBoard menus to set the IP Address of the MFC-8322-S. Refer to “**Configuring the DIP Switches**” for details.

**SW3** is used to override the Master Password for the MFC-8322-S. This password limits access to the card, and the cards installed in the frame.

#### 4. Card Lock

This lock located near the front edge of the card is used to secure the card in its frame slot.

## Configuring the DIP Switches

This section briefly summarizes the **DIP Switch** settings on the MFC-8322-S. **Figure 7** shows the DIP Switches in the **ON** position.

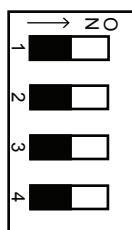


Figure 7 DIP Switches — Set to the ON Positions

### SW1, SW2 — IP Address Setup

**SW1** and **SW2** are used in conjunction with the DashBoard menus to set the IP Address of the MFC-8322-S. Refer to **Table 4** for DIP Switch positions. For information on configuring the network settings for your card, refer to “**Configuring the Network Settings**”.

Table 4 SW1 and SW2 Positions

SW1 Position	SW2 Position	Controlled via DashBoard	Descriptions
OFF	OFF	✓	The card network settings can be set by the user from the DashBoard <b>Network</b> tab <sup>a</sup> . (default)
OFF	ON		The card network settings are automatically assigned (DHCP Mode).
ON	OFF		The card IP Address is set to 192.168.2.1 The card Subnet Mask is set to 255.255.255.0.
ON	ON		The card IP Address is set to 10.1.2.1. The card Subnet Mask is set to 255.255.255.0.

a. DHCP Mode is assumed until the user changes the settings in DashBoard.

### SW3 — Master Password Override

**SW3** is used to override the Master Password. This feature forces a reset of the Master Password. Refer to “**Using a Master Password**” for details.

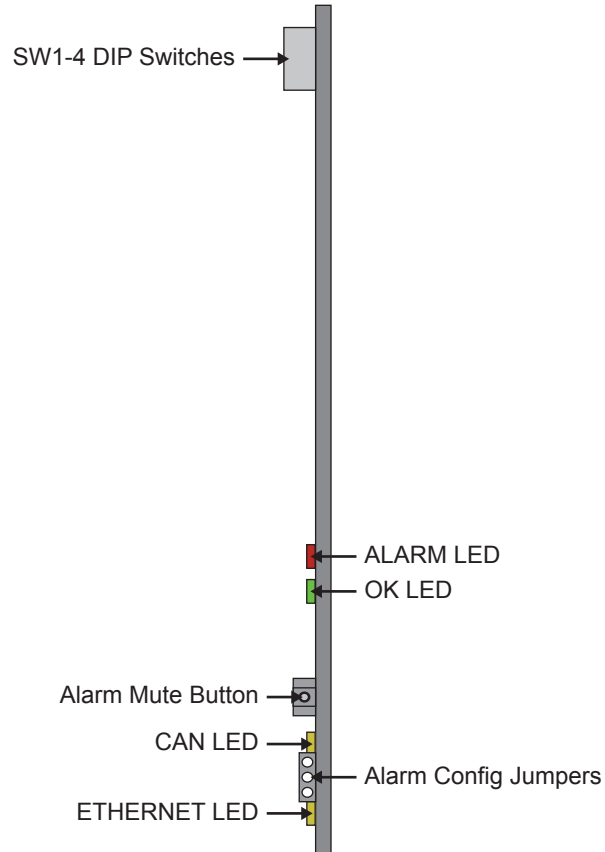
- **OFF** — This is the recommended position. A user-specified Master Password is used. The default password is **password**. You can change your password using the options in DashBoard as outlined in “**Using a Master Password**”.
- **ON** — This position is used to recover a lost Master Password. The user-specified password is temporarily ignored, and the default value of **password** is used.

## SW4

**SW4** is not implemented at this time and should be left in the **OFF** position.

## Monitoring the MFC-8322-S

The front card-edge of the MFC-8322-S has LED indicators for the cooling module fan, alarm, and communication activity. Refer to **Figure 8** for the location of the card-edge LEDs on the MFC-8322-S.



*Figure 8 MFC-8322-S Card-edge Controls*

**Table 5** provides information on the LED displays of the MFC-8322-S.

**Table 5 MFC-8322-S LED Descriptions**

LED	Color	Description
<b>OK</b>	Red	When lit, this LED indicates a major alarm condition is occurring in the frame.
<b>ALARM</b>	Green	When lit, this LED indicates the MFC-8322-S is operating correctly.

**Table 5 MFC-8322-S LED Descriptions**

LED	Color	Description
<b>CAN</b>	Flashing Yellow	When flashing, this LED indicates the MFC-8322-S is communicating with the other cards within the frame.
	Off	When off, this LED indicates an absence of incoming messages.
<b>Ethernet</b>	Yellow <sup>a</sup>	When lit, this LED indicates a valid ethernet link has been established. No data transfer is currently taking place.
	Flashing Yellow	When flashing, this LED indicates that a valid link has been established, and data is currently being exchanged.
	Off	When off, this LED indicates an absence of ethernet connection.

- a. If this LED remains lit for an extended period of time (e.g. minutes or more), ensure that the Ethernet port on the frame is connected to a functioning ethernet switch.



# Physical Installation

If you have questions pertaining to the installation of MFC-OG3-N and MFC-8322-S, please contact us at the numbers listed in “**Contacting Technical Support**”. Our technical staff is always available for consultation, training, or service.

## Before You Begin

These installation guidelines assume the following:

- The OGX-FR frame is properly installed. Refer to the **OGX-FR Series User Guide** for details.
- A valid IP addresses is available for the card.

### Static Discharge

Throughout this chapter, please heed the following cautionary note:



**ESD Susceptibility** — *Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

## Installing the MFC-OG3-N and MFC-8322-S into an OGX-FR Frame

This section outlines how to install an MFC-OG3-N and MFC-8322-S in an openGear frame. The same procedure applies regardless of the frame or card type. The MFC-OG3-N and MFC-8322-S installs in the last slot on the right side of the openGear frame (when facing the frame).



**Caution** — *You must install the MFC-8322-S and the MFC-OG3-N into an OG3-FR or OGX-FR series frame. Attempting to install these cards in another frame type can damage your card.*

### To install a MFC-OG3-N and MFC-8322-S

- ★ Refer to the **OGX-FR User Guide** for details on powering off the frame and opening the door.
1. Power off the openGear frame.
  2. Open the frame door.
  3. If necessary, remove any cards from the frame that would interfere with easy access and lines of sight.
  4. Lift the lock before inserting the card into its slot. (**Figure 9**)

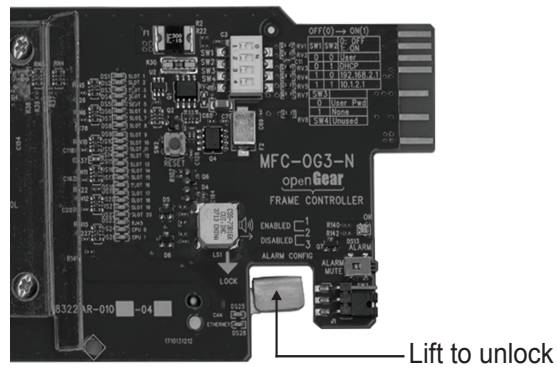


Figure 9 Frame Controller Card — Lock

5. Insert the MFC-OG3-N or MFC-8322-S, with the component side out into the card guides between the dividing wall and the last slot, ensuring the card does not touch the Card Retaining Screw.
6. Slide the card in the slot until firmly seated.
7. Ensure the lock on the front edge of the card is engaged in the down position.
- ★ Refer to the **OGX-FR User Guide** for details on powering on the frame and closing the door.
8. Power up the frame.
9. Close the frame door.
10. Check the operation of the fans. If the fans do not operate, verify that:
  - a. the MFC-OG3-N or MFC-8322-S is seated properly in the frame backplane.
  - b. the MFC-OG3-N or MFC-8322-S is aligned to the Fan PCB when the door is closed.

# Configuring the Network Settings

The MFC-OG3-N and MFC-8322-S features an Ethernet interface which allows cards in the OGX-FR to be monitored and controlled using the DashBoard Control System. Communication is possible only when the MFC-OG3-N and MFC-8322-S are suitably configured to match the network to which it is connected.

★ Consult your IT Department before configuring any network settings.

## Overview

This section explains the necessary parameters and lists several possible methods for managing these parameters.

- **Automatic configuration using DHCP** — When shipped from the factory, the Network Controller card is configured to automatically obtain network settings from a Dynamic Host Configuration Protocol (DHCP) server. Since most networks have a DHCP server available, this method is applicable to most users and is the recommended method.
- **Preset configuration using DIP switch(es)** — The Network Controller card can be forced to use specific pre-defined network settings by means of DIP switches located on the card surface. This can be used to establish initial communications when no DHCP server is available, or to override a custom user configuration.
- **Custom user configuration via DashBoard** — Using the network setting options available in the DashBoard Control System, you may configure the Network Controller card to use a static address or enable DHCP for automatic configuration. This can only be done once communication has been established.

★ Before proceeding, ensure that the DashBoard Control System software is installed on your computer.

## Before You Begin

Ensure that:

- An MFC-OG3-N or an MFC-8322-S was installed in your OGX-FR frame.
- The OGX-FR frame that houses the MFC-OG3-N and MFC-8322-S displays in the Basic Tree View of DashBoard.
- The MFC-OG3-N or MFC-8322-S displays as a sub-node in the OGX-FR frame tree.
- The DashBoard Control System software is installed on a PC that is on the same network as the OGX-FR frame housing the Network Controller Card.

## Launching DashBoard

DashBoard must run on a computer that has a physical wired ethernet connection. Wireless connections do not allow device discovery.

### For More Information on...

- downloading and installing the DashBoard client software, refer to the ***DashBoard User Guide***.
- the interfaces in DashBoard, refer to “**DashBoard Interface Overview**”.

### To launch DashBoard

1. Ensure that you are running DashBoard software version 9.10 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

## Automatic Configuration using DHCP

★ This method assumes that the MFC-OG3-N and MFC-8322-S is using the factory default values for the network settings.

The MFC-OG3-N and MFC-8322-S boots much faster than a typical DHCP server. In the case of a facility-wide power failure, the Network Controller card may not appear on the network if communications with the DHCP server cannot be established. Once the DHCP server becomes operational, re-boot the MFC-OG3-N and MFC-8322-S to re-establish communications. To avoid this, you may use a static configuration as described in **“Custom User Configuration via DashBoard”**.

### To establish communications

1. Ensure that OGX-FR is connected to the same network as your DashBoard computer.
2. Launch the DashBoard application on your computer.
3. Power on the OGX-FR that the Network Controller card is installed in.
4. Wait approximately 30 seconds while the frame establishes network communications.
5. Verify that the MFC-OG3-N and MFC-8322-S displays in the Tree View of DashBoard:
  - a. Expand the node for the openGear frame that the card is installed in.
  - b. Locate the card in the frame tree view.
6. Should the card fail to display after two minutes:
  - a. Verify the Ethernet cables are properly connected.
  - b. Check the link/activity LEDs found on the ethernet RJ-45 connectors.
  - c. Ensure the network settings for the Network Controller card are set to the factory default values.
  - d. If all cables are connected and the LEDs do not indicate an error, then automatic configuration is not possible. Proceed to **“Preset Configuration using DIP Switches”**.

## Preset Configuration using DIP Switches

This method is used to establish initial communications when no DHCP server is available, or to override a custom user configuration and is intended to be used temporarily in order to establish communication. Once initial communications are established, the Network Controller card should be configured for either DHCP or Static operation.

★ Use of this method for normal operation is not recommended, as there is a high chance of IP Address conflicts.

### To use a preset network configuration using the DIP Switch(es)

1. Power down the OGX-FR that houses the Network Controller card.
2. Quit DashBoard on your computer.
3. Set the DIP Switch to specify the preset IP Address as outlined in the applicable Setup chapter of this manual for your Network Controller card model.
4. Ensure the network settings of your computer are compatible with those chosen for the Network Controller card.

- ★ The IP Addresses of the MFC-OG3-N and MFC-8322-S and your computer must be similar, but not identical, and the Subnet Mask must match exactly the same. For example, if the Network Controller card has an IP Address of 192.168.2.1, then your computer should be configured for an IP Address with 192.168.2.X where X is a number other than 1.
5. Before you begin, and to prevent IP Address conflicts, isolate the MFC-OG3-N and MFC-8322-S and your DashBoard computer from the rest of your network.
    - If you are using a hub or switch, unplug all devices except the MFC-OG3-N and MFC-8322-S and your DashBoard computer; or
    - Connect the OGX-FR directly to the DashBoard computer.
  - ★ The MFC-OG3-N and MFC-8322-S, and MFC-OG3-N, support Auto-MDIX, enabling you to use any ethernet cable when connecting the frame to the DashBoard computer.
  6. Launch DashBoard on your computer.
  7. Power up the OGX-FR.
  8. Wait approximately 30 seconds while the frame establishes network communications.
  9. Verify that the MFC-OG3-N and MFC-8322-S displays in the Tree View of DashBoard:
    - a. Expand the node for the openGear frame that the card is installed in.
    - b. Locate the card in the frame tree view.
  10. Should the card fail to display after a minute or two:
    - a. Verify the Ethernet cables are properly connected.
    - b. Check the link/activity LEDs found on the ethernet RJ-45 connectors.
    - c. Verify that you have properly performed each step of this procedure.
    - d. Contact Ross Video Technical Support if you cannot establish a connection.

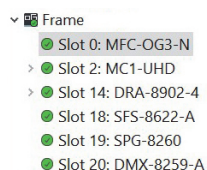
## Custom User Configuration via DashBoard

Once communication is established with the MFC-OG3-N and MFC-8322-S, the network settings may be further adjusted using the following procedure. Note that the steps are optional, you may perform as many, or as few, as needed.

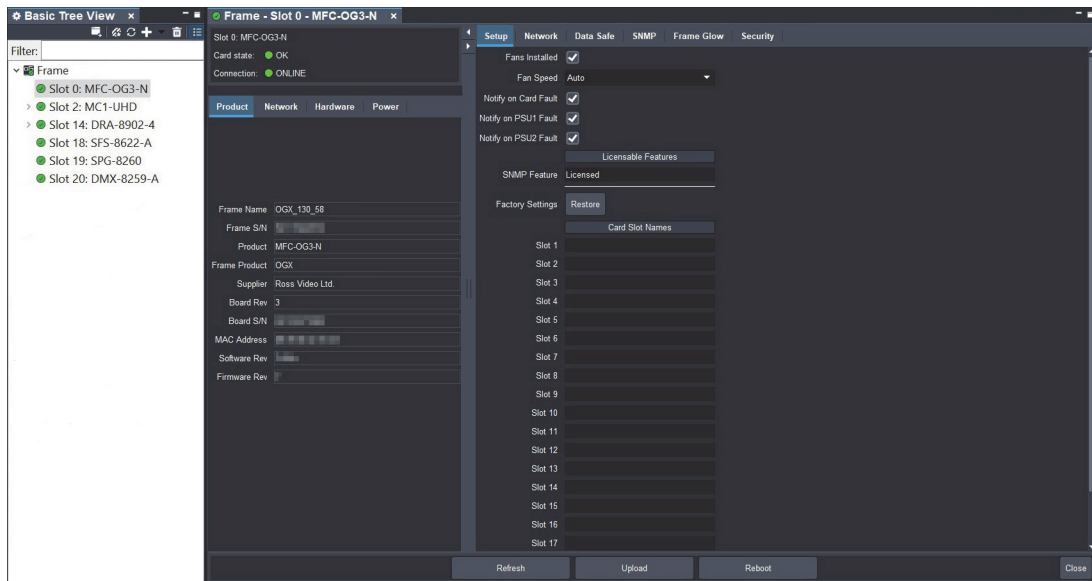
- ★ Some settings may require that you configure a DIP Switch before proceeding. Refer to “**MFC-OG3-N Overview**”, or “**MFC-8322-S Overview**” for details.

### To configure the network settings via DashBoard

1. Launch DashBoard.
2. Display the Network Controller Card tabs in DashBoard as follows:
  - a. In the Basic Tree View of DashBoard, locate the OGX-FR frame the card is installed in.
  - b. Expand the OGX-FR frame node to display a list of sub-nodes.  
Each sub-node represents a card installed in that frame.
  - c. Locate the MFC-OG3-N or MFC-8322-S node in the frame tree.



- d. Double-click the Network Controller Card node to display its tabs in the right pane of the Dashboard window.



3. Select the **Network** tab.
  4. To change the display name of the frame, enter a new name in the **Frame Name** field.
  5. To change the **Network Time Server** address, enter the new IP Address in the **NTP Server** field.
  6. To change between **Static** and **DHCP** addressing, select an option in the **Addressing Mode** area.
  7. Configure the network settings as required:
    - **IP Address** — This is the IP Address of the MFC-OG3-N and MFC-8322-S.
    - **Subnet Mask** — This is the Subnet Mask address for your LAN.
    - **Default Gateway** — This is the IP Address for connection outside the subnet.
  8. To save the new settings, click **Apply** in the **Network** tab.
- ★ The settings are saved immediately and take effect except when overridden by DIP Switch settings. Clicking **Cancel** reverts to the previous settings.

## Setting the Port Speed

The Ethernet switch on the MFC-OG3-N controller operates at 1Gb/s by default. This is suitable for most openGear cards, however, certain cards are not able to establish a link at this speed. To enable Ethernet communication to such cards; it is necessary to configure the MFC-OG3-N to reduce the speed on a per-slot basis. Consult the documentation of your openGear card to determine the required speed (if unspecified, the default 1Gb/s is the correct setting).

### To force the Ethernet speed on a per-slot basis in the OGX-FR frame

1. Launch Dashboard.
2. Display the Network Controller Card tabs in Dashboard as outlined in **“To access the MFC-OG3-N or MFC-8322-S interface in Dashboard”**.
3. Select the **Network** tab.
4. Locate the **Ethernet Switch** area of the **Network** tab.

5. Locate the slot you wish to force the port speed for.

You may need to scroll down the tab to locate the applicable row.

6. Use the **Force Port Speed** field to specify the speed that the OGX-FR Ethernet switch will be set to.

The new speed is applied automatically.

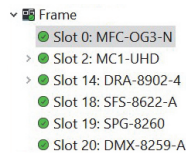
- ★ If an openGear card requiring 1Gb/s speed is inserted into a slot that previously had a slower Port Speed rate, you must the **Force Port Speed** back to 1Gb/s on the MFC-OG3-N controller.

## Accessing the Interfaces in DashBoard

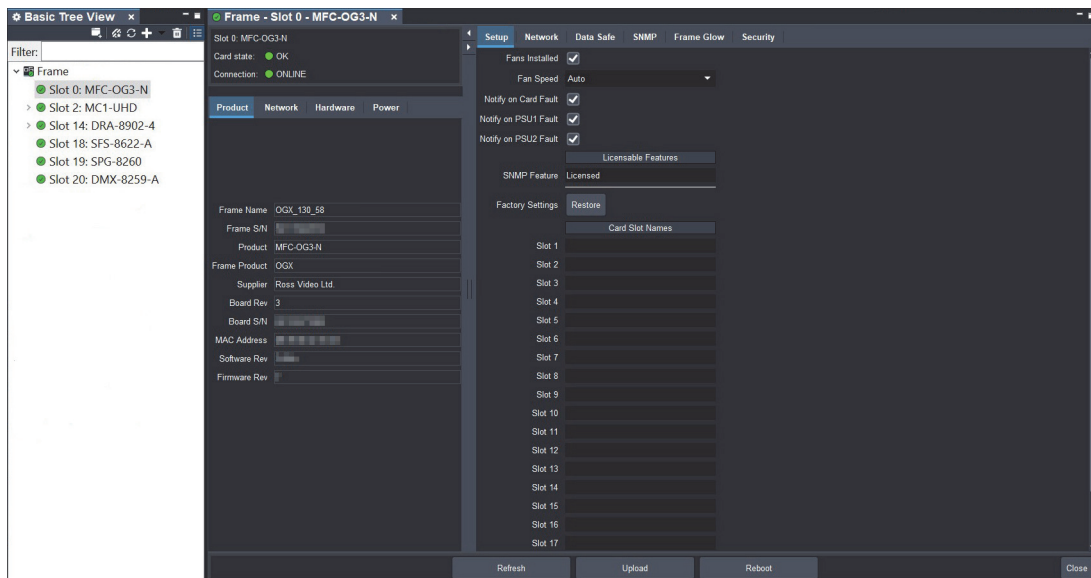
Once the network settings are established for the Network Controller Card, you can display its tabs and access its features in the DashBoard Control System window.

### To access the MFC-OG3-N or MFC-8322-S interface in DashBoard

1. Launch DashBoard.
2. In the Basic Tree View of DashBoard, locate the OGX-FR frame the card is installed in.
3. Expand the OGX-FR frame node to display a list of sub-nodes.  
Each sub-node represents a card installed in that frame.
4. Locate the MFC-OG3-N or MFC-8322-S node in the frame tree.



- ★ The MFC-OG3-N and MFC-8322-S display as a Slot 0 node.
5. Double-click the Network Controller Card node to display its tabs in the right pane of the DashBoard window.



6. Select a tab to display its options in the DashBoard window.

In the example above, the Product and Setup tabs are selected for the MFC-OG3-N.





# Using a Master Password

Configuring the Master Password for your frame requires configuring the password feature in DashBoard.

## Overview

Right-clicking an openGear frame node in the tree view of DashBoard provides the option to **Lock/Unlock Access** which requires the user to enter a Master Password before gaining access to the frame and the cards installed in it. This Master Password can be the same for all frames listed in the DashBoard client, or unique to each frame, or a mix.

When using the DashBoard Server and URM, openGear frame nodes in the Tree View display a lock icon to inform the user that restrictions are in place. This lock icon indicates that the node is locked and requires a Master Password, or that the user must log into the DashBoard client with a valid user account, to gain access to the node.

### For More Information on...

- the lock icon, refer to the *DashBoard RPM User Guide*.

## DashBoard User Rights Management

If your facility has installed and configured the DashBoard Server and URM feature, you may need to enter a URM user name and password to access the frame and any of the devices installed in the frame. For details on configuring and using the DashBoard Server and URM feature, refer to the *DashBoard RPM User Guide*.

## Setting the DIP Switch on the Card

Your MFC-OG3-N and MFC-8322-S includes **SW3** (a DIP Switch) that enables you to override the Master Password.

Use this DIP switch when the Master Password needs to be reset (e.g. when you have forgotten the password text). If you change the configuration of the DIP Switch, you must reboot the card before the changes take effect.

### For More Information on...

- the DIP Switch for the MFC-OG3-N, refer to “**SW3 — Master Password Override**”.
- the DIP Switch for the MFC-8322-S, refer to “**SW3 — Master Password Override**”.

### To override the Master Password using the DIP Switch

- **OFF** — This is the recommended position. A user-specified Master Password is used. The default password is `password`. It can be changed using DashBoard as outlined in “**To configure the Master Password in DashBoard**”.
- **ON** — This position is used to recover a lost Master Password. The user-specified password is temporarily ignored, and the default value of password is used.

## Configuring the Master Password in DashBoard

Refer to **Table 6** to verify that you are running the required DashBoard and card software versions. Note that at time of writing, the current version of DashBoard is 8.3.

★ It is recommended to change the Master Password from its default value.

**Table 6 Required Software Versions**

Card Model	DashBoard Version	Card Software Version
MFC-8322-S	4.0.0 or higher	2.00 or higher
MFC-OG3-N	4.0.0 or higher	2.75 or higher

### To configure the Master Password in DashBoard

1. Navigate to the frame in the Tree View of the DashBoard client.
2. Right-click the frame node and select **Lock/Unlock Access** to display the **Change Master Password** dialog. By default, the current Master Password for the frame is automatically entered into the **Old Password** field.
3. Select the **Change master password** check box.
4. Type the new Master Password for the frame in the **New Password** field.
5. Re-type the new Master Password for the frame in the **Confirm** field.
6. Select the **Prevent unauthorized access to this frame** check box to enforce access controls for this frame.
  - Users with older version of DashBoard will be unable to connect to the frame.
  - DashBoard clients version 4.0.0 or higher will use DashBoard URM to determine user access rights.
7. From the dialog window located under the **Confirm** field, select the frame(s) you wish to apply the new Master Password to. Or you can use the provided menu to quickly select all frames, clear the selections, select only presently locked frames, or select only currently unlocked frames.
8. Click **OK**.

## Accessing a MFC-OG3-N and MFC-8322-S

You can access a MFC-OG3-N and MFC-8322-S using your user account, assuming you have permissions to do so. If DashBoard URM is implemented in your facility and your DashBoard client is version 4.0.0 or higher, you log in as outlined in **"To use a valid user account"**. If DashBoard URM is unavailable, or when using the DashBoard Lite applet, you log in as outlined in the procedure **"To use the Master Password"**.

### To use a valid user account

1. Launch the DashBoard client on your computer.
2. Log into the DashBoard client with your user account and password.
3. Navigate to the frame in the Tree View of the DashBoard client.

### To use the Master Password

1. Launch the DashBoard client on your computer.
2. Navigate to a locked frame displayed in the Tree View of the DashBoard client.
3. Double-click the frame node to display the **Password Required** dialog. You can also double-click the frame name and select **Open**.
4. Enter the Master Password for the frame in the provided field.

5. Use one of the following methods:
  - Click **Try Password** to connect to the selected frame; or
  - Click **Try for All** to connect to all locked frames displayed in the Tree View. Only when you attempt to connect to additional locked frames and the login fails, are you prompted for the password.
- ★ Any frame accessed with a Master Password via the **Try for All** selection remains unlocked until you exit the DashBoard client.
6. If the password was incorrect, an error message displays to prompt you for another log in attempt.



# Configuring the Security Settings

This chapter provides instructions for restricting the access of specific services to your MFC-OG3-N and MFC-8322-S.

## Overview

This section briefly outlines the type of services that the MFC-OG3-N and MFC-8322-S can disable the services for all the cards in the openGear frame.

### SNMP Daemon

The Simple Network Management Protocol (SNMP) daemon is a background server process that is supported by a Transmission Control Protocol/Internet Protocol (TCP/IP) workstation host. SNMP enables servers to securely share information, and is commonly used by system administrators to collect information about their networks.

★ This option is only available for the MFC-OG3-N.

### SSH Login

Secure Shell (SSH) Login is a client-server protocol used by system administrators to securely log onto remote systems and execute commands over an unsecured network. This service is disabled by default.

★ This option is only available for the MFC-OG3-N.

### Software Upgrades

The openGear cards in your frame can be upgraded in the field via the options in DashBoard. This feature is disabled by default. When enabled, a card can be upgraded by selecting **Upload** in the DashBoard window and selecting a \*.bin file to upload.

★ This option is only available for the MFC-OG3-N.

### SLP Daemon

The Service Location Protocol (SLP) is a service discovery protocol that allows computers and other devices (e.g. printers, databases, e-mail directories) to find services in a local area network without prior configuration.

## Disabling a Service

Each service can be individually enabled or disabled via the MFC-OG3-N and MFC-8322-S security settings in DashBoard.

### To disable a service on the openGear frame

1. Display the card in DashBoard as outlined in “**To access the MFC-OG3-N or MFC-8322-S interface in DashBoard**”.
2. If you are using an MFC-8322-S:

- a. Select the **Setup** tab.
- b. Locate the **Security Configuration** area on the **Setup** tab.
3. If you are using an MFC-OG3-N, select the **Security** tab.
4. Locate the settings for the service you wish to disable.
5. Select the **Disabled** option for the service.
6. Repeat steps 4 and 5 for each service you wish to disable.
7. Click **Apply**.
8. Click **Reboot** to apply the new setting(s).

# Enabling SNMP Support

Certain versions of the MFC-OG3-N provides optional support for remote monitoring and control of your frame and openGear cards using SNMP (Simple Network Management Protocol), which is compatible with many third-party monitoring and control tools. Refer to “**Overview**” for a list of cards that support SNMP.

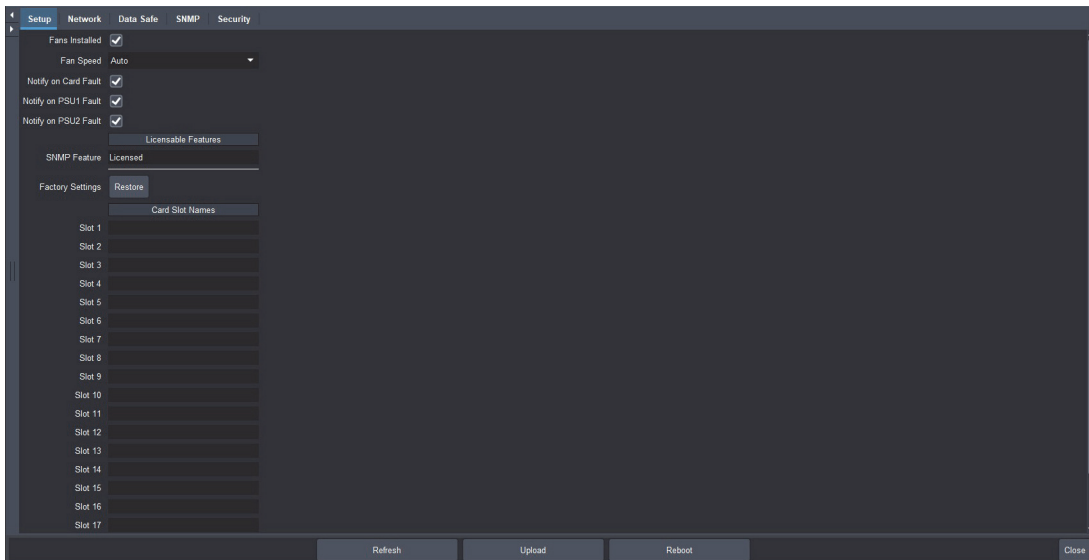
★ The MFC-8322-S does not support SNMP.

## Enabling SNMP Support

The SNMP monitoring and control feature for your MFC-OG3-N is a software option that is field upgradeable using DashBoard.

### To enable SNMP support using the SNMP tab in DashBoard

1. Ensure that you have configured the network settings for your card as outlined in the chapter “**Configuring the Network Settings**”.
2. Display the cards in DashBoard as outlined in “**To access the MFC-OG3-N or MFC-8322-S interface in DashBoard**”.
3. Select the **Setup** tab.



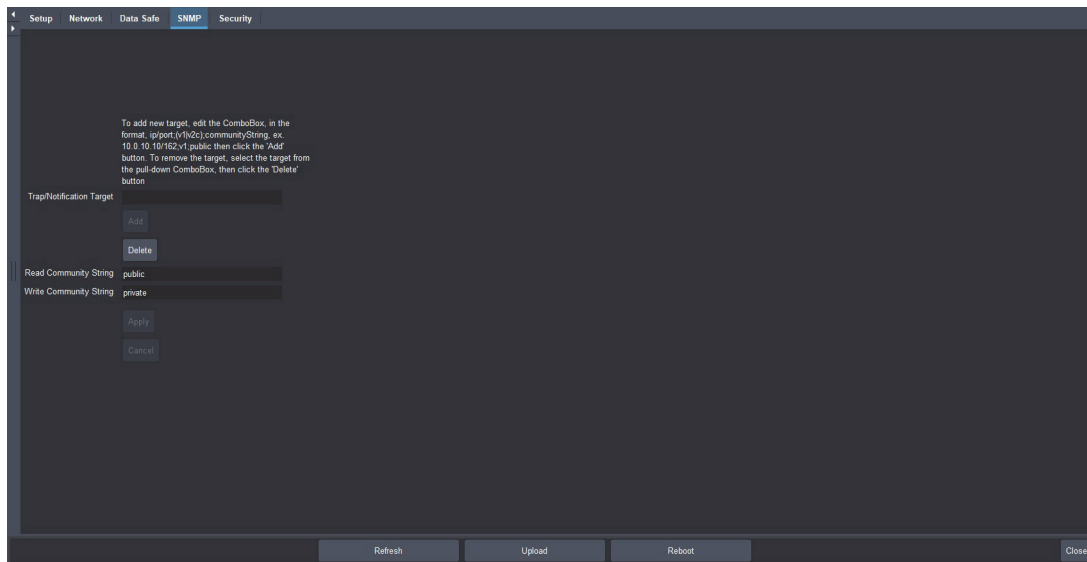
4. In the **Licensable Features** area, make a note of the information displayed in the **SNMP Request Code** field.
5. Contact Ross Video Technical Support.
  - When you speak to the Technical Support representative, tell them your name, your facility name, and the **SNMP Request Code** displayed in the **Setup** tab.
  - You will be given a **License Key** that must be entered in the **SNMP Feature Key** field of the **Setup** tab.
6. Enter the **License Key** in the **SNMP Feature Key** field.
7. When the installation is complete, verify that the **Setup** tab displays “**Licensed**” in the **SNMP Feature** field and that the **SNMP** tab is now available in the **Device View**.

## Configuring the SNMP Agent using DashBoard

The SNMP agent on the frame will accept SNMP GET and SET requests on the default SNMP port (161), using SNMP version 1 or SNMP version 2c. The SNMP Agent will send SNMP traps to one or more notification targets, with user-configurable address, port, and protocol version number.

### To configure your SNMP Agent via DashBoard

1. Display the cards in DashBoard as outlined in “**To access the MFC-OG3-N or MFC-8322-S interface in DashBoard**”.
2. Select the **SNMP** tab.



3. Set the required parameters as follows:
  - **Read Community String** — Enter the SNMP password for **GET** requests. For example, `public`.
  - **Write Community String** — Enter the SNMP password for **SET** requests. For example, `private`.
4. Enter a new target in the **Trap/Notification Target** field. This field follows the format of **###.###.###/aaa;bb;cc** where:
  - **###.###.###** represents the **Target IP address** to which traps should be sent.
  - **aaa** represents the **UDP Port number** to which traps should be sent.
  - **bb** represents the **SNMP protocol version** to be used for traps to this target.
  - **cc** represents the **Target community string**.
  - ★ An example of a valid target is provided in the **SNMP** tab in DashBoard.
5. Press **[Enter]** to enable the **Add** button on the **SNMP** tab.
6. Click **Add** to update the **Trap/Notification Target** field with the new target.
- ★ A maximum of six strings are displayed in the **Trap/Notification Target** field at one time. If at the maximum number, you must select a string from the field and delete it before adding a new target entry.
- ★ To remove a trap/notification target, select the target in the field, and click **Delete**.
7. Click **Apply** to save the strings in the **Trap/Notification Target** field to non-volatile memory.



# DataSafe

DataSafe enables you to load and store card parameters automatically, or you can load from and store to a single file in DashBoard.

★ This feature is available for frames using an MFC-OG3-N only.

## For More Information on...

- using the DataSafe feature in DashBoard, refer to the ***DashBoard User Guide***.

## Overview

The following DataSafe features are available when using a MFC-OG3-N:

★ DataSafe is disabled by default.

- The MFC-OG3-N monitors all traffic going through it. On power-up, the MFC-OG3-N queries for all card information.
- Changes to writable parameters of cards is noted and the current version of all parameters is stored. Parameter data is stored locally on the network card for every slot independently.
- Parameter data can be saved in a single file.
- DataSafe enables the user to send all the parameter data to a card slot or to every slot on the network that matches.
- You can use a limited DashBoard view to update a subset of cards instead of the entire connected view. DashBoard sends the file to a specific network card and slot for use. Once received, it updates the card if the attached card matches the data sent.
- DataSafe stores and recalls the parameters automatically with or without a network connection.
- When a DataSafe mismatch occurs, there is an audible alarm from the card and a warning message is displayed in DashBoard. You can clear the alarm using an option in the Setup tab, or by using the card-edge controls. A DataSafe mismatch occurs when the software version or the card type does not match the saved data for that slot.

## For More Information on...

- the options available in the DataSafe tab, refer to "**DataSafe Tab**".

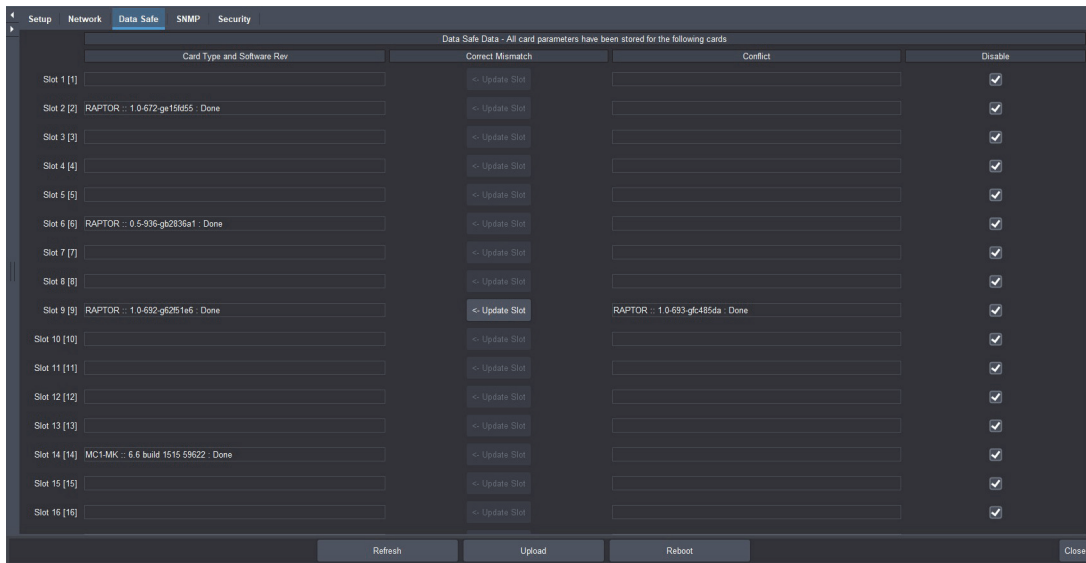
## Enabling DataSafe

All slot fields in the DataSafe tab of your MFC-OG3-N are set to Disable by default. The Disable feature prevents DashBoard from automatically recalling the card parameters for the specified slot. You may still monitor the status of the cards in those slots, and DashBoard still updates the slot information when a new card is installed or when a card is removed from the slot and replaced with another card.

★ DashBoard version 2.3.0 or higher is required to access DataSafe features.

### To enable DataSafe for a specific slot

1. From the Tree View in DashBoard, double-click the MFC-OG3-N sub-node.
2. Select the **DataSafe** tab.



3. Locate the card slot(s) you wish to enable DataSafe for.
4. Clear the corresponding box in the **Disable** column.

## Re-naming a Card Slot

DashBoard enables you to re-name a card slot and have that name display in all Tree Views and the DataSafe tab window for the specific MFC-OG3-N.

### To re-name an openGear slot in the Tree View

1. From the Tree View in DashBoard, double-click the MFC-OG3-N sub-node.
2. Select the **Setup** tab.
3. In the **Card Slot Names** section of the **Setup** tab, locate the slot you wish to re-name.
4. Enter the new name for the card slot in the text field provided.

## Hiding the DataSafe Warnings

A DataSafe mismatch warning occurs in DashBoard when:

- a card of the same type is installed that does not match the software of the card previously installed in that slot; or
- a card of a different type is installed in the slot.

DashBoard includes a Mask Warning option in the DataSafe tab for each MFC-OG3-N. Enabling the Mask Warning option prevents error messages from displaying in the Data Safe State field of the Hardware tab.

### To hide DataSafe mismatch warnings in DashBoard

1. From the Tree View in DashBoard, double-click the MFC-OG3-N node.
2. Select the **DataSafe** tab.

3. Mask the DataSafe mismatch warnings as follows:

- Checkbox cleared — DashBoard displays an error message in the Data Safe State field of the Hardware tab. Information is also displayed in the Conflict field of the DataSafe tab to alert the user that a software mismatch is occurring. This is the default setting.
- Checkbox selected — This feature is disabled. DashBoard does not update the Data Safe State field of the Hardware tab, nor the Conflict field of the DataSafe tab.

## Forcing DataSafe Files to Load

The Conflict field in the DataSafe tab indicates when a currently installed card has a card type or software incompatibility.

- When there is a DataSafe mismatch on the slot, the **Update Slot** button is enabled for that slot. Click this button to replace the last saved parameters with the current card parameters.
- Use the **Force** button in the DataSafe tab to force the currently saved DataSafe data to load to all cards with software mismatches and store the new information. Refer to the ***DashBoard User Guide*** for details.
- Press and hold the **Alarm** button on the openGear frame for 5 seconds to force DataSafe to update the slots. The **Alarm** button is located on the door of the frame. Refer to the frame user guide for more details on this button.

## Resetting an MFC-OG3-N to Factory Defaults

Through DashBoard, you can reset the factory settings of the MFC-OG3-N using the **Restore** button in the Setup tab. Note that the frame name is unaffected.

★ Clicking the **Restore** button erases all DataSafe data for the MFC-OG3-N.

Clicking the **Restore** button in the **Setup** tab of the MFC-OG3-N performs the following tasks in DashBoard:

- All values in the Setup tab of the MFC-OG3-N are reset to the factory defaults.
- All Slot names are deleted. Slot name fields are blank and all DashBoard fields are updated with the default names.

## Using the Alarm Button

An audible alarm indicates when a DataSafe mismatch occurs, such as when a card is installed that does not match the compatibility range of the DataSafe saved data.

- Single pressing the Alarm button mutes the audible alarm, but does not mask the alarm displayed in DashBoard. For information on masking DataSafe mismatch warnings, refer to ***"Hiding the DataSafe Warnings"***.
- Holding the Alarm Mute button on the MFC-OG3-N down for approximately 5 seconds causes the new settings of all cards to be copied to the saved DataSafe slots.
- Press and hold the **Alarm** button on the openGear frame for 5 seconds to force DataSafe to update the slots. The **Alarm** button is located on the door of the frame. Refer to the frame user guide for more details on this button



# Configuring the Frame Glow

The OGX-FR includes the Frame Glow feature which is user-programmable via DashBoard. Users can configure the glow to use a preset color palette or set unique colors to indicate different alarm states. This enables you to color code your rack room by function, air chain, or whatever works for you.

★ The Frame Glow options display in DashBoard only when the MFC-OG3-N or MFC-8322-S are installed in an OGX-FR frame.

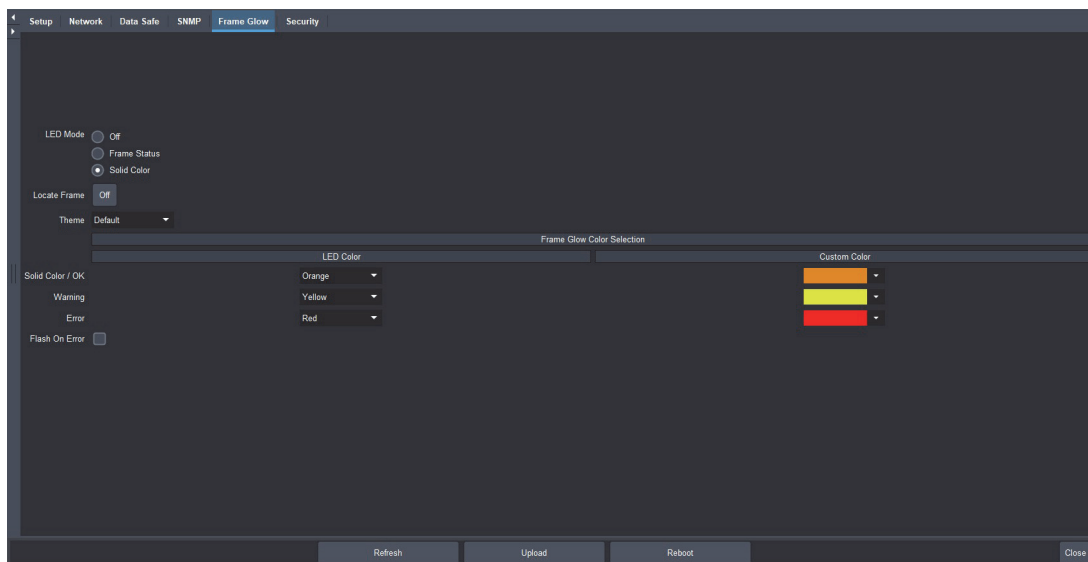
While the MFC-OG3-N is used as an example in this chapter, the procedures and steps are applicable to both the MFC-OG3-N and MFC-8322-S.

## Setting the LED Mode

Setting the LED Mode enables you to customize the look of your installation with the programmable RGB LED bar on the front panel.

### To specify the LED behavior

1. Select the **Frame Glow** tab.



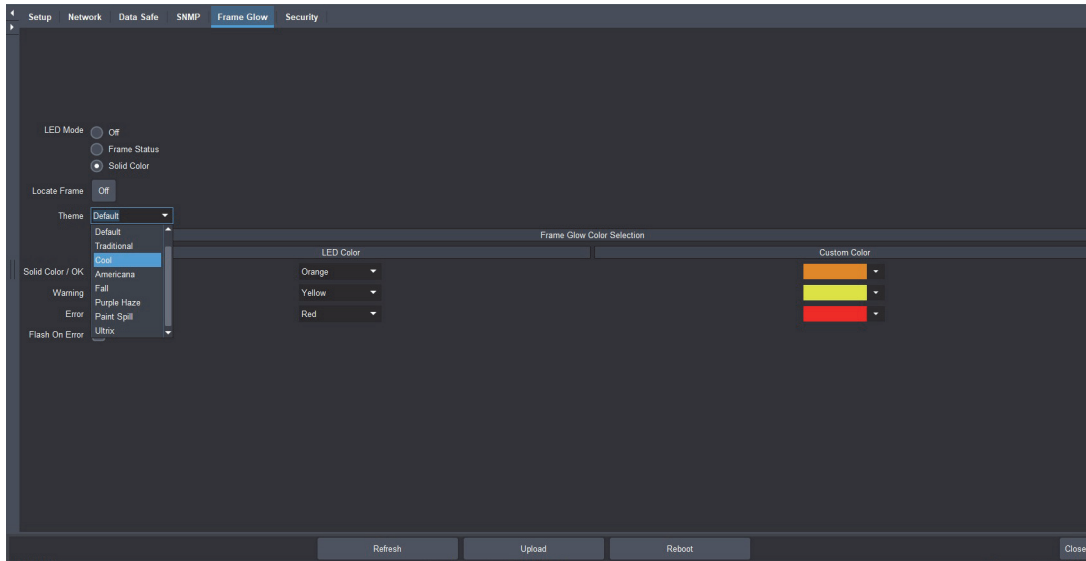
2. Choose a **LED Mode** from the following:
  - **Off** — The LED on the front panel is not lit.
  - **Frame Status** — The LED on the front panel is lit as specified in the Frame Status Color Selection settings. Refer to “**Specifying the Frame Glow Color**”.
  - **Solid Color** — The LED on the front panel is continuously lit the “OK” LED color specified by the theme you choose in the procedure “**To specify the LED color theme**”.

## Specifying the LED Color Theme

There are three color themes that you can apply to the front panel LED each with preset colors assigned to the LED states, or you can choose to customize the colors for each LED state.

## To specify the LED color theme

1. Select the **Frame Glow** tab.
2. Select the **Theme** menu.



3. Choose a **Theme** from **Table 1** or select **Custom** and proceed to “**Creating a Custom Color**”.

**Table 1 Themes — Preset Colors**

Theme	Default LED Color		
	OK	Warning	Error
Custom	<input type="text"/>	<input type="text"/>	<input type="text"/>
Default			
Traditional			
Cool	<input type="text"/>		
Americana			
Fall			
Purple Haze			
Paint Spill			
Ultrix			

- ★ You can still configure individual LED Colors to a Custom Color even if the Theme is not set to Custom. Refer to “**Creating a Custom Color**” for details.

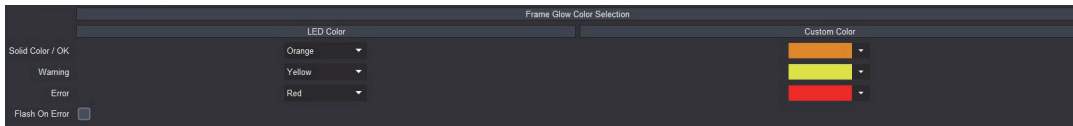
## Specifying the Frame Glow Color

If you set the LED Mode to Frame Status, you can choose to apply the LED colors as defined by the Theme you chose in the previous procedure, or you can apply a custom color to each LED state.

★ The LED Color for each LED state is automatically set as determined by the Theme you chose.

### To configure the Frame Glow Colors

1. Select the **Frame Glow** tab.
2. Locate the **Frame Glow Color Selection** area.



3. To specify the LED color when the frame is not reporting errors:
  - a. Use the **LED Color** setting in the **OK** row to select a preset color or Custom.
  - b. If you selected Custom, proceed to “**Creating a Custom Color**”.
4. To specify the LED color when the frame is reporting a warning:
  - a. Use the **LED Color** setting in the **Warning** row to select a preset color or Custom.
  - b. If you selected Custom, proceed to “**Creating a Custom Color**”.
5. To specify the LED color when the frame is reporting errors:
  - a. Use the **LED Color** setting in the **Error** row to select a preset color or Custom.
  - b. If you selected Custom, proceed to “**Creating a Custom Color**”.
6. Select the **Flash on Error** check-box to enable the Frame Glow to pulsate when an error is detected.

## Creating a Custom Color

Creating a custom color requires the same steps regardless of the LED Mode.

### To configure a Custom Color for an LED state

1. Set the **LED Color** to Custom as outlined in “**To configure the Frame Glow Colors**”.
2. Locate the **Custom Color** column in the **Frame Glow Color Selection** area.
3. Select the **Custom Color** menu for the LED state you want to create a custom color for.  
The **Custom Color** dialog opens.
4. Use the **Hue** options to specify whether the color is red, yellow, green, blue, purple, etc. Or you can select the hue from the provided vertical color grid in the **Custom Color** dialog.
5. Use the **Saturation** options to specify the depth of the color.
6. Use the **Lightness** options to specify the amount of white or black mixed with the selected hue.
7. Confirm that the field beneath the color grid displays the desired color.
8. Apply your color selection using of the following options:
  - Click **Live** to preview the color scheme and apply it but not close the **Custom Color** dialog; or
  - Click **OK** to apply the new color and close the **Custom Color** dialog.

## Functions for Locating the Frame

There are two LED functions that you can use to physically locate the OGX-FR frame in a rack unit: the **Locate Frame** button or the **Flash on Error** check box.

### Using the Locate Frame Button

Toggle the **Locate Frame** button to **ON** to enable the LED on the front panel to flash white and red.

Toggle the button to **OFF**, and the LED returns to its specified LED Mode behavior.

### Using the Flash on Error Function

Selecting the **Flash on Error** check box enables the OGX-FR Front Display LED to pulsate when:

- an error is detected with the frame (e.g. a stalled fan)
- an openGear card installed in the frame is reporting an error (e.g. a loss of input signal)
- a communication error is occurring (e.g. a loss of network connection)


This function enables you to quickly identify an OGX-FR within your racks that is experiencing an error.



# Upgrading the Software

Your MFC-OG3-N and MFC-8322-S can be upgraded in the field via DashBoard.

## To upgrade the software on a MFC-OG3-N and MFC-8322-S

1. Contact Ross Technical Support for the latest software version file.
2. Display the card in DashBoard as outlined in “**Accessing the Interfaces in DashBoard**”.
3. If you are upgrading an MFC-OG3-N, verify that the remote upgrade option is enabled:
  - a. Select the **Security** tab.
  - b. Select **Upgrades > Enabled**.
4. Click **Upload**, located at the bottom of the DashBoard interface, to display the **Select file for upload** dialog.
5. Navigate to the \*.bin upload file you want to upload to the MFC-OG3-N and MFC-8322-S.
6. Click **Open** to display a confirmation dialog.
7. To upgrade a single card:
  - a. Click **Finish** to display the **Uploading to Selected Devices** dialog.
  - b. Proceed to step 9.
8. To upgrade multiple cards:
  - a. Click **Next >** to display the **Select Destination** menu. This menu provides a list of the compatible cards.
  - b. Specify the card(s) to upload the file to by selecting the box(es) for the cards you wish to upload the file to.
  - c. Verify that the card(s) you wish to upload the file to. The **Error/Warning** fields indicate any errors, such as incompatible software or card type mismatch.
  - d. Click **Finish** to display the **Uploading to Selected Devices** dialog.
  - e. Proceed to step 9.
9. Monitor the upgrade via the **Uploading to Selected Devices** dialog.
  - a. Notice that each card is listed in the dialog with a  button.
  - b. This button is replaced with a **Reboot** button once the software file is loaded to that card.
- ★ Do not click the individual **Reboot** buttons until all cards have successfully completed the file upload process and the **OK** button, located in the bottom right corner of the dialog, is enabled.
10. Click **OK** to reboot all the cards listed in the **Uploading to Selected Devices** dialog.

The **Reboot Confirm** dialog displays, indicating the number of cards that will reboot.
11. Click **Yes** to continue the upgrade process.
- ★ Clicking **Cancel** or **No** returns you to the **Uploading to Selected Devices** dialog without rebooting the card(s).
- ★ The communications processor of the MFC-OG3-N and MFC-8322-S requires approximately 30 seconds to re-start and re-establish network communications.
12. The card(s) are temporarily taken off-line during the reboot process. The process is complete once the status indicators for the **Card State** and **Connection** return to their previous status.

13. If you encounter problems when upgrading your card software, verify the following:
- Your network settings on the card are valid.
  - The ethernet cable is properly connected if you are uploading the file via a network connection.
  - The file you are attempting to load is a **\*.bin** file that is for the card you are upgrading.
- ★ If the card fails to upgrade correctly, contact Ross Technical Support for an upgrade file and instructions on using the Micro SD Card slot on your card.

# DashBoard Interface Overview

This chapter provides information the DashBoard menus available for the MFC-OG3-N and MFC-8322-S. Note that some of the available menus and options are dependent on the card you are using. Default values are indicated with an asterisk (\*).

DashBoard enables you to monitor and control openGear frames and cards from a computer. DashBoard communicates with other cards in the frame through the Network Controller Card. You can download the DashBoard software and manual from the Ross Video website.

## Status Tabs

This section summarizes the Status tabs displayed in DashBoard for the Network Controller Cards. The indicators in the Status tabs can vary in severity from green (valid), yellow (caution), to red (alarm). DashBoard reports the most severe alarm for a single field. Alarm colors are noted within the tables as text set in brackets next to the parameter name.

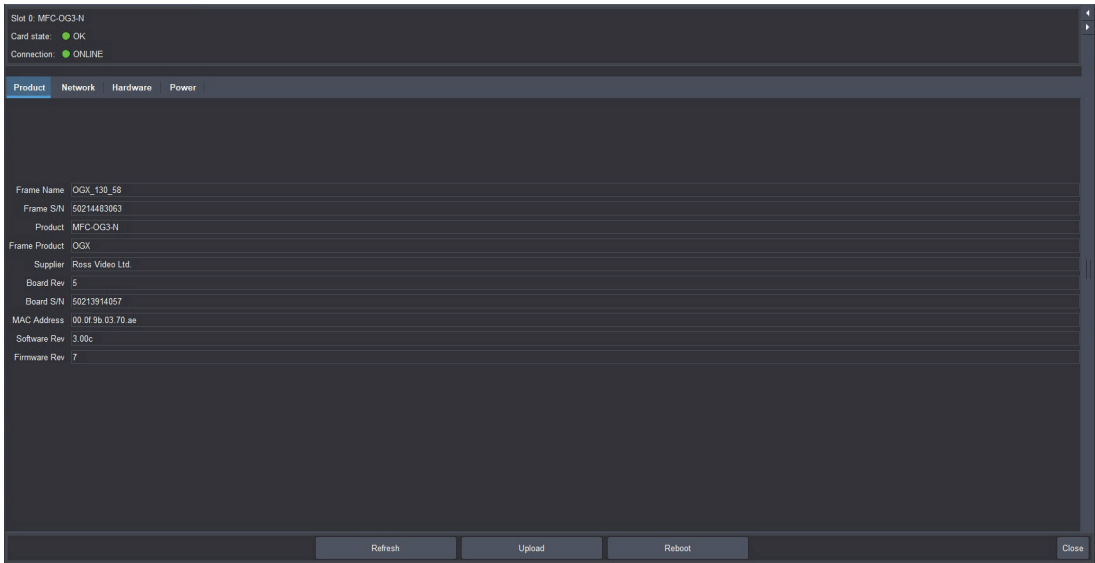


Figure 1 Example of Status Tabs in DashBoard

## Product Tab

Table 2 summarizes the read-only information displayed in the Product tab.

Table 2 Status — Product Tab

Item	Parameters	Description
Frame Name	#	Name as defined by the user in the Network tab
Frame S/N	#	Indicates the serial number assigned to the frame
Product	#	Indicates the type of Network Controller Card
Frame Product	#	Indicates the openGear frame model the card is in
Supplier	Ross Video Ltd.	

**Table 2 Status — Product Tab**

Item	Parameters	Description
Board Rev	#	Indicates the hardware revision
Board S/N	#	Indicates the serial number assigned to the card
MAC Address	#	Indicates the MAC address assigned to the card
Software Rev	#	Indicates the software version running on the card
Firmware Rev	#	Indicates the card firmware version

## Network Tab

**Table 3** summarizes the read-only information displayed in the Network tab.

**Table 3 Status — Network Tab**

Item	Parameters	Description
<b>Current Settings</b>		
Network Source	DHCP - set by user	SW1 and SW2 are set to OFF
		The Addressing Mode is set to DHCP
		The network settings are automatically assigned to the card via the DHCP server
	Static - set by user	SW1 and SW2 are set to OFF
		The Addressing Mode is set to Static
		User defines the network settings via the Network tab in DashBoard
	DHCP - set by DIP	SW1 is set to OFF and SW2 is set to ON
		The network settings are automatically assigned to the card via the DHCP server
	Factory Default 1	SW1 is set to ON and SW2 is set to OFF
		Card IP Address is set to 192.168.2.1
	Factory Default 2	SW1 and SW2 are set to ON
		Card IP Address is set to 10.1.2.1
IP Address	#	Displays the IP Address assigned to the card
Subnet Mask	#	Displays the Subnet Mask for the card
Default Gateway	#	Indicates the card gateway
NTP Server	#	Indicates the IP Address of the NTP server the card is using as a time source
<b>Connection Management</b>		
Access Mode	Open	No access restrictions; the card accepts connections from all DashBoard clients

**Table 3 Status — Network Tab**

Item	Parameters	Description
Access Mode	Authenticated Only	Access control enabled; only DashBoard clients v4.0 or higher can connect to the card.
		The user must be authenticated by the DashBoard Server and URM, or must know the Master Password of the card
Master Password	*****	Indicates that a user-specified password is set for the card
	Overridden by DIP switch	The user-specified password is overridden; SW3 is enabled
		The Master Password is now overridden to the factory default value of <b>password</b>
Active Connections	#	Indicates the number of external control devices, such as DashBoard clients, connected via TCP to the frame
<b>Internal Bus Status</b>		
Active Cards	#	Indicates the number of active openGear cards within this frame
Bus Load	#kb/sec	Communication traffic of the internal CAN Bus. A high value indicates a high amount of traffic.

## Hardware Tab

**Table 4** summarizes the read-only information displayed in the Hardware tab.

**Table 4 Status — Hardware Tab**

Item	Parameters	Description
Frame status	OK (Green)	Operation is without errors
	Running a backup code (Yellow)	Applies only to the MFC-8322-S
		The last upgrade of the software failed and the card is now running a copy of the software previous to the failed upgrade. It is recommended to attempt another upgrade of the software and then reboot the card.
		Contact Ross Technical Support if this message is persistent
	Card Warning (Yellow)	Indicates that an openGear card in the frame is experiencing a fault condition
	Fan door open (Yellow/Red)	Indicates the status of the openGear frame
	Frame Power >470W (Red) <sup>a</sup>	

**Table 4 Status — Hardware Tab**

Item	Parameters	Description
Frame status	Frame Power >350W (Red) <sup>b</sup>	Indicates the status of the openGear frame power supplies
	PSU fuse blown (Red)	
	PSU fault (Red)	
	PSU fan stalled (Red)	
	PSU AC missing (Red)	
	PSU Power off (Red)	
	Card fault (Red)	Indicates the status of cards in the openGear frame
	Ref card missing (Red)	
Mid-plane ID	#	Indicates the board issue
Fan Controller ID	#	
Audio Alarm	Enabled	Indicates that the Alarm Config jumper is set to enable audio alarms
	Disabled	The Audio Alarm is disabled
Voltage (mV)	#	Indicates the supply voltage
Current (mA)	#	Indicates the current consumption of the card
Negative Rail (mV)	#	Indicates the negative voltage of the card
Fan Speed <sup>c</sup>	#	Indicate the fan speed of the openGear frame
	x / y	Current speed (x) / Maximum speed (y)
Fan Door	Open	Indicates the physical state of the fan door
	Closed	
PSU# Status <sup>d</sup>	Duplicates the information reported in the Power tab ( <b>Table 5</b> )	
CPU headroom	x.xx / y.yy / z.zz	Indicates the CPU Load average for the Primary Process of the card where: <ul style="list-style-type: none"><li>• x.xx represents the last minute</li><li>• y.yy represents the last five minutes</li><li>• z.zz represents the last fifteen minutes</li></ul>
RAM available (megabytes)	x / y	Memory used (x) / Total memory (y)
DataSafe State <sup>e</sup>	OK (Green)	No DataSafe mismatch is occurring
	Yellow	Indicates that a new card was installed in the frame and a DataSafe mismatch occurred

- Message applies to the MFC-OG3-N when installed in an OGX-FR frame.
- Message applies to the MFC-OG3-N when installed in an OG3-FR frame.
- This alarm is set using the Fan Speed option in the Setup tab.
- This field applies to the MFC-OG3-N only.
- This field applies to the MFC-OG3-N only.

## Power Tab

**Table 5** summarizes the read-only information displayed in the Power tab.

**Table 5 Status — Power Tab**

Item	Parameters	Description
<b>Power</b>		
Ambient Temp (°C)	#	Ambient temperature within the openGear frame
Frame Power (W)	#	Frame power consumption
Max Slot Current (mA)	#	The highest power usage by a single slot in the openGear frame
<b>PSU #</b>		
PSU# Status	Present (Green)	The PSU is operating correctly
	Alarm Masked (Green)	The Notify on PSU Fault alarm is disabled
	Missing (Green)	No PSU is installed in the frame slot
	AC Missing (Red)	The PSU is detected but it is not connected to an external power source
	Power off (Red)	The PSU is detected, and connected to an external power source but there is no power feed
	Fan Fault (Red)	An error condition is occurring with one of the fans in the PSU. Verify the information reported in the Fan RPM field.
	Fuse blown (Red)	A hardware error has occurred and the specified PSU may not be in operation.
	Fault (Red)	An error condition is occurring within the PSU. Verify the following status fields: <ul style="list-style-type: none"> <li>• Temperature</li> <li>• Fan RPM</li> </ul>
	Incompatible (Red)	An OG3-FR power supply is detected in an OGX-FR frame
PSU# Model	#	Indicates the power supply type installed in the specified PSU slot inside the openGear frame
Serial Number	#	Serial number assigned to the specified PSU
Software Rev	#	Software version running on the specified PSU
+12V Current (mA)	#	Indicates the power supplied to the specified PSU
-7.5V Current (mA)	#	
Temperature (C)	#	Reports the temperature of the specified PSU
Fan RPM	#rpm, #rpm	Reports the speed of each fan in the specified PSU

## Setup Tab

**Table 6** summarizes the options displayed in the Setup tab.

**Table 6 Setup Tab**

Item	Parameters	Description
<b>General Configuration</b>		
Fans Installed <sup>a</sup>	Selected*	Alarms are displayed in the Hardware > Frame Status field
	Cleared	No alarms are reported in the Hardware > Frame Status field
Fan Speed	Auto*	Card automatically controls the cooling fan speed of the frame for optimum cooling
	Max	Frame fans always run at maximum speed
Notify on Card Fault	Selected*	Card displays an alarm in DashBoard and the FAULT LED lights solid red on the frame chassis when a fault condition is reported by a card in the frame
	Cleared	Disables this feature
Notify on PSU # Fault <sup>b</sup>	Selected	An alarm condition is flagged if the corresponding power supply is not present or the PSU is not operating correctly. The alarm displays in DashBoard via SNMP (if the option is enabled), and via the LCD Diagnostic Panel on the frame chassis
	Cleared*	Disables the PSU Status alarm for the specified power supply
CAN Monitor <sup>c</sup>	Disabled	Disables this feature. <b>NOTE:</b> Do not change this setting from the default unless directed by Ross Technical Support.
	Enabled*	Enables the automatic monitoring of the CAN bus traffic
SLP Daemon	Disabled	The MFC-8322-S cannot be discovered using Service Location Protocol (SLP) by networking applications (e.g. DashBoard)
	Enabled	Enables the MFC-8322-S to be discovered in a local area network without prior configuration
Factory Settings	Restore	Defaults all the values in the Setup tab only
<b>Licensable Features</b>		
SNMP Feature	#	Indicates if the software key is installed
<b>Card Slot Names</b>		
Slot # <sup>d</sup>	#	Configures the name displayed in DashBoard for the specified slot

a. This option is read-only when the OGX-FR frame door is closed.



- b. This item is only available when using an MFC-OG3-N.
- c. This item is only available when using an MFC-8322-S
- d. This item is only available when using an MFC-OG3-N.

## Restoring Menu Items to the Factory Default Settings

**Table 7** lists the editable menu items that are reset to the factory default settings when the **Restore** button is selected in the **Setup** menu.

**Table 7 Menu Items Restored to Factory Default Settings**

Menu	Restored to Factory Default Value
<b>Setup Tab</b>	
Fans Installed	✓
Fan Speed	✓
Notify on Card Fault	✓
Notify on PSU # Missing	✓
Card Slot Names	✓
<b>Network Tab</b>	
All editable menus	
<b>DataSafe Tab</b>	
Disable	✓
Mask Warning	✓
<b>SNMP Tab</b>	
All editable menus	
<b>Frame Glow Tab</b>	
All editable menus	
<b>Security Tab</b>	
All editable menus	

## Network Tab

**Table 8** summarizes the options displayed in the Network tab.

**Table 8 Network Tab**

Item	Parameters	Description
Frame Name	#	Assigns a unique identifier in DashBoard for the OGX-FR frame; the Frame Name field is automatically updated in the Product tab
NTP Server	#	Specifies the IP Address for the NTP server that the OGX-FR frame uses as a time source
Current DIP Switch (read-only)	#	Indicates the physical position of the DIP Switches on the Network Controller Card

**Table 8 Network Tab**

Item	Parameters	Description
Addressing Mode	Static	User defines the Network settings of the Network Controller Card
	DHCP <sup>a</sup>	DashBoard obtains network settings automatically for the Network Controller Card
IP Address	#	Enables you to set the IP Address of the Network Controller Card if the Addressing Mode is set to Static
Subnet Mask	#	Enables you to set the Subnet Mask of the Network Controller Card if the Addressing Mode is set to Static
Default Gateway	#	Enables you to set the Default Gateway of the Network Controller Card if the Addressing Mode is set to Static
<b>Ethernet Switch - Slot #<sup>b</sup></b>		
Port Status (read-only)	No link	Indicates there is no link detected between the network and the specified card slot
	Loop detected	Indicates that a network loop was detected on the specified card slot and the link was automatically disabled by the MFC-OG3-N
	Link up, #M	Indicates a valid network link is detected and reports the current link speed (#M)
Force Port Speed	1Gb/s*	Forces the speed that the Ethernet switch, in the OGX-FR frame, is set to on a per-slot basis.  Consult the documentation of your openGear card to determine the required speed (if unspecified, the default 1Gb/s is the correct setting).
	100Mb/s	
	10Mb/s	
Frame Ethernet (read-only)	Link up, #M	Indicates that a valid network link is detected on the Ethernet port of the OGX-FR rear panel, and reports the current link speed (#M)

- a. The Addressing Mode is set to DHCP at the factory before shipment.  
b. These options are only available when using an MFC-OG3-N.

## DataSafe Tab

**Table 9** summarizes the options displayed in the DataSafe tab.

★ This tab is not available when using an MFC-8322-S.

**Table 9 DataSafe Tab**

Item	Parameters	Description
<b>Slot xx [##]<sup>a</sup></b>		
Card Type and Software Rev (read-only)	n :: v : s	Displays information for the card currently installed in the specified slot where: <ul style="list-style-type: none"> <li>• <i>n</i> represents the card name</li> <li>• <i>v</i> represents the software version</li> <li>• <i>s</i> represents the status message</li> </ul>
Correct Mismatch	<- Update Slot	Automatically updates the slot with the new card information indicated in the Conflict field
Conflict (read-only)	<blank>	When blank, this field indicates that the card currently in the slot is the same card model and running the same card software version as the card that was saved via DataSafe for this slot
Conflict (read-only)	n :: v : s	Indicates that the software version or the card model do not match the saved data for the slot where: <ul style="list-style-type: none"> <li>• <i>n</i> represents the card name</li> <li>• <i>v</i> represents the software version</li> <li>• <i>s</i> represents the status message</li> </ul>
Disable	Selected*	Disables the DataSafe feature for the specified slot. You can still monitor the slot, but you cannot update the slot with any new configuration data received when a new card is installed in that slot.
	Cleared	Enables the Conflict field to report any card mismatch information. To update the slot, you must click <b>&lt;- Update Slot</b> .
Force	Loads the current DataSafe data to the cards. This button is enabled only if a software version incompatibility exists.	
Mask Warning	Selected	The Network Controller Card displays a warning message in DashBoard if any of the card slots have a new/changed entry
	Cleared*	The Network Controller Card does not display a warning message in DashBoard if any of the card slots have a new/changed entry

- a. Displays the current slot name (xx) and the slot number (##). The slot name is set via the Setup > Slot Name field.

## SNMP Tab

**Table 10** summarizes the options displayed in the SNMP tab.

★ You must have an MFC-OG3-N with the SNMP feature licensed to display this tab.

**Table 10 SNMP Tab**

Item	Description
Trap/Notification Target	Adds a trap/notification target
Add	Adds the selected target
Delete	Deletes the selected target
Read Community String	Specifies the SNMP password for GET requests
Write Community String	Specifies the SNMP password for SET requests
Apply	Applies the current changes and saves them to the Network Controller Card memory
Cancel	Cancels the changes

## Frame Glow Tab

**Table 11** summarizes the options displayed in the Frame Glow tab.

★ The Frame Glow tab displays only when the MFC-OG3-N or MFC-8322-S are installed in an OGX-FR frame.

**Table 11 Frame Glow Tab**

Item	Parameters	Description
LED Mode	Off	The LED on the front panel is lit
	Frame Status	The LED on the front panel is lit the color as determined by the Frame Status Color Selection settings
	Solid Color	The LED on the front panel is lit the color as determined by the Solid Color Selection settings
Locate Frame	Off	Disables this feature
	On	The LED on the front panel will flash continuously until the Locate Frame button is toggled to Off

**Table 11 Frame Glow Tab**

Item	Parameters	Description
Theme	Custom	Enables you to define and apply a customized color for each LED state (OK, Warning, Error)
	Default	Refer to <b>Table 1</b> for details on the default Frame Glow color settings for each LED state
	Traditional	
	Cool	
	Americana	
	Fall	
	Purple Haze	
	Paint Spill	
Frame Glow Color Selection - OK		
LED Color	When LED Mode is set to Frame Status, this menu specifies the color the LED displays when the frame is not experiencing any errors, and reports “OK” as it status.	
Custom Color	Use this menu to create a unique color to be applied when LED Color is set to Custom and the frame is operating correctly	
Frame Status Color Selection - Warning		
LED Color	When LED Mode is set to Frame Status, this menu specifies the color the LED displays when the frame is experiencing a warning, and reports any warning as it status.	
Custom Color	Use this menu to create a unique color to be applied when LED Color is set to Custom and the frame experiences an error.	
Frame Status Color Selection - Error		
LED Color	When LED Mode is set to Frame Status, this menu specifies the color the LED displays when the frame is experiencing an error, and reports any error as it status.	
Custom Color	Use this menu to create a unique color to be applied when LED Color is set to Custom and the frame experiences an error.	
Flash on Error	Selected	The LED on the front panel will pulsate when an error is detected with the frame, the Controller Card, or any of the openGear cards installed in the frame
	Cleared	Disables this feature

## Security Tab

**Table 12** summarizes the options displayed in the Security tab.

- ★ The Security tab only displays for the MFC-OG3-N. Refer to **Table 6** for the Security features available on the MFC-8322-S.

**Table 12 Security Tab**

Item	Parameters	Description
SNMP Daemon	Disabled	Disables the connection between the MFC-OG3-N and the SNMP background server process over TCP/IP
	Enabled	The MFC-OG3-N communicates with the SNMP background server
SSH login	Disabled	Disables the ability for a user to log onto the MFC-OG3-N via a SSH server
	Enabled	The MFC-OG3-N can be accessed via a secure channel by an SSH server
Upgrades	Disabled	The software on the MFC-OG3-N cannot be upgraded. This is the default.
	Enabled	A user can upgrade the MFC-OG3-N software via DashBoard. Refer to <b>"Upgrading the Software"</b> for details.
SLP Daemon	Disabled	The MFC-OG3-N cannot be discovered using Service Location Protocol (SLP) by networking applications (e.g. DashBoard)
	Enabled	Enables the MFC-OG3-N to be discovered in a local area network without prior configuration

# Service Information

Routine maintenance to this openGear product is not required. In the event of problems with your card, the following basic troubleshooting checklist may help identify the source of the problem. If the frame still does not appear to be working properly after checking all possible causes, please contact your openGear products distributor, or the Technical Support department at the numbers listed in “**Contacting Technical Support**”.

1. **Visual Review** — Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the card, the frame, and any associated peripheral equipment for signs of trouble.
2. **Power Check** — Inspect the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.
3. **Input Signal Status** — Verify that source equipment is operating correctly and that a valid signal is being supplied.
4. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.
5. **Unit Exchange** — Exchanging a suspect unit with a unit that is known to be working correctly is an efficient method for localizing problems to individual units.

## MFC-OG3-N Troubleshooting Tips

This section provides additional troubleshooting information.

### Using a Web Browser

Under the guidance of Ross Technical Support, the MFC-OG3-N may be recoverable via the web interface as follows:

1. If the IP address of the card is known, use a web browser to try and connect to the openGear frame by typing the IP address into the browser window as **http://xxx** where **xxx** represents the IP address of the frame.
2. If this is successful, this provides access to diagnostic information for troubleshooting. Contact Ross Technical Support for assistance.

### Alarm Mute Button

In the unlikely event of a complete card failure, you may be instructed by a Ross Technical Support specialist to perform a complete software reload on the MFC-OG3-N. The **Alarm Mute** button enables emergency booting in case of flash corruption or, to recover from a failed software upgrade.

## MFC-8322-S Troubleshooting Tips

In the unlikely event of a complete card failure, you may be instructed by Ross Technical Support to perform a complete software reload on the MFC-8322-S. The **Alarm Mute/Bootload** button enables emergency booting in case of flash corruption or, to recover from a failed software upgrade.

The MFC-8322-S contain a primary software load and two backup loads. When the **Alarm Mute/Bootload** button is pressed and held during power-up, the card will try the two backups, in turn, instead of the primary load.

- If a valid backup is found, it is copied into the primary load.
- If neither backup is valid, then all LEDs are lit to indicate a failure.

When running from a backup copy that differs from the primary load, the **Frame Status** indicator in the **Hardware** tab of DashBoard displays “**Running a backup code**”. If this message displays, Ross Video recommends performing a software upgrade to ensure that all copies remain valid.

## Warranty and Repair Policy

The Network Controller Card is warranted to be free of any defect with respect to performance, quality, reliability, and workmanship for a period of FIVE (5) years from the date of shipment from our factory. In the event that your Network Controller Card proves to be defective in any way during this warranty period, Ross Video Limited reserves the right to repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this Network Controller Card has failed after your warranty period has expired, we will repair your defective product should suitable replacement components be available. You, the owner, will bear any labor and/or part costs incurred in the repair or refurbishment of said equipment beyond the FIVE (5) year warranty period.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

This User Guide provides all pertinent information for the safe installation and operation of your openGear Product. Ross Video policy dictates that all repairs to the Network Controller Card are to be conducted only by an authorized Ross Video Limited factory representative. Therefore, any unauthorized attempt to repair this product, by anyone other than an authorized Ross Video Limited factory representative, will automatically void the warranty. Please contact Ross Video Technical Support for more information.

## In Case of Problems

Should any problem arise with your Network Controller Card, please contact the Ross Video Technical Support Department. (Contact information is supplied at the end of this publication.)

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your Network Controller Card. If required, a temporary replacement frame will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.

The Ross Video Technical Support Department will continue to provide advice on any product manufactured by Ross Video Limited, beyond the warranty period without charge, for the life of the equipment.



# Glossary

The following terms are used throughout this guide:

**Active image** — the portion of the video picture area (production aperture) that is being utilized for output content. Active image excludes letterbox bars and pillarbox bars.

**Card** — openGear terminal devices within openGear frames, including all components and switches.

**CBR** — constant bit rate.

**CDN** — content distribution network.

**DashBoard** — the DashBoard Control System.

**DF** — Differentiated Services.

**DTVCC captions** — CEA-708 captions.

**Frame** — the OGX-FR frame that houses the MFC-OG3-N and MFC-8322-S.

**HLS** — HTTP Live streaming.

**HTTP** — Direct Hypertext Transfer Protocol.

**MIB** — management information base.

**Network Controller Card** — the MFC-OG3-N, the MFC-OGX-N, and any available options unless otherwise noted.

**NTSC captions** — the CEA-608-D: Line 21 Data Services captions.

**openGear frame** — refers to the OGX-FR series frames unless otherwise noted.

**PAL** — PAL-B and PAL-G unless otherwise stated.

**PCR** — program clock reference.

**PID** — packet identifier.

**Production aperture** — the image lattice that represents the maximum possible image extent in a given standard (e.g. the full size of all active pixels and active lines). For example, the 1080i production aperture would be 1920x1080.

**RTMP** — Real Time Messaging Protocol.

**Stream** — a transport stream present at the port.

**System** — the mix of interconnected production and terminal equipment in your environment.

**TCP** — Transmission Control Protocol.

**TOS** — Type of Service.

**TPG** — Test Packet Generator.

**TTL** — Time To Live.

**UDP** — User Datagram Protocol.

**User** — the person who uses the Network Controller Card.

