DanRiver
TECHNOLOGIES

User Quick Start Guide

10GE/GE OAM/IP Media Converter

MMC-X2

Release 1.1

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Introduction

MMC-X2 is an OSI Layer 2 Ethernet media converter device with two Dual-Rate Ethernet fiber port(1000Base-X and 10GBase-X), The Card convert a data signal to the correct wavelength and distance for transmission by supporting SFP/SFP+ optics on both LAN side and WAN side interfaces. When the MMC-X2 card is placed in the small housing with dual Redundancy AC power supplies,it supports stand-alone management via IP (Telnet, SNMP & HTTP) or in-band management via OAM protocol when connected to another 1000EAS/X or 10GBase-X and can view the converter's status, type, version, fiber link status and alarms, and also can be configured to enable or disable the port, reset the port, provide diagnostic loopback and set the desired data rate.

This card is specifically designed for Ethernet speed,they include 10G Ethernet, Gigabit Ethernet.

Features

- Support data rates from 1 to 10Gbps
- Support stand-alone
- L2 Switch Based Media Converter
- L2 Control Protocol Transparency
- 10240 bytes MTU(Jumbo Frames)
- Line rate performance from 64 Bytes to 9600 Bytes
- 802.1Q tag VLAN support
- 802.1ad Double Tag VLAN support (Q-in-Q)
- OAM Connectivity Fault Management(CFM)
- Link Loss Forwarding (LLF/ TLPT) or RFD
- Support Loopback test
- Dying gasp (Remote power failure detection)
- Ingress/Egress Bandwidth control per port,Bandwidth Limitation with 1G Granularity
- Remote in-band,Configurable VLAN/IP, ICMP supported
- Digital diagnostic Monitor of supported SFP/SFP+ Modules
- Per port RMON counters
- Hardware RESET button on the front
- Support firmware upgrade via GUI, TFTP
- Telnet Menu, Web-Based GUI, SNMP and OAM

The SFP+/SFP sockets support a wide range of optical modules to address any gigabit Ethernet,10 Gigabit network .

Situation:

　　Single-mode

　　Multi-mode

　　Single fiber bi-directional

Coarse and Dense Wave Division Multiplexing (CWDM and DWDM)

<mark>**WARNING**</mark>: Fiber optic equipment may emit laser or infrared light that can injure your eyes. ever look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a laser light source.

Specifications

Optical Interface	
• Transceiver Type	SFP, SFP+, Copper SFP
• Connector	LC
• Data Rate	1~10Gbps
• Duplex Mode	Full Duplex
• Fiber	Depends on SFP(+)
• Distance	Depends on SFP(+)
• Wavelength	CWDM 1271~1611nm, DWDM 1529.5~1565.5nm
Indications	LED (PWR, RFD, TX, Link/Act,FAN)
Power	(Card supports hot-swapping)
• Input	Dual Redundancy Power supplies,AC:85V ~ 264VAC, Frequency Range: 47 ~ 63Hz or DC power: -36~-72VDC
• Consumption	<30W
Dimensions (WxDxH mm)	135x240x44
Weight(kg)	1 (Housing with service card)
Temperature	0~50°C (Operating), -10~70°C (Storage)
Humidity	10~90% non-condensing
MTBF	65000 hrs (25°C)

Management Features

The MMC-X2 card integrates powerful CPU and has three management ways, When placed in a small housing, the card is configured and monitored through WAN via Telnet, Web HTTP or SNMP.

Optional for onsite or in-field when placed in a stand-alone chassis with RJ45 console port, these devices also support a text based serial terminal with an easy to use menu system for local configuration.)

1. Stand-alone - with Telnet menu, Web HTTP or SNMP
2. Stand-alone - with serial console, menu driven

Panel

LED Indicators SFP/SFP+ Slots LED Indicators
Figure 1. Front Panel of MMC-X2

Rear

Figure 2. Rear Panel of MMC-X2 without RS232(Default)

AC Power Socket
Figure 3.Rear Panel of MMC-X2 with RS232(Optional)

Installations

This converter card can be placed in 1-slot CTS-2AC Housing w/o console, or CTS-2AC 1-slot CTS-2AC Housing w/console

Figure 4. Slide-in Card mounting of MMC-X2

Reset Button

DEFAULT is Reset Button on the front side, it's for user to restart the device MMC-X2 card or reset to factory default configuration.

You can insert a paper clip into the hole,push in, towards the card, but don't force it.

Figure 5. Paper clip

Just press the button to restart the device, Reset button is pressed over 5 seconds until Link/Act LED off , factory default configuration is be restored and restarted.

LED Indicators

LED	Color	State	Status
PWR1 PWR2	Green	On	Power On
		Off	Indicates a fault or no power supply
RFD	Green	On	Enabled
		Off	Disabled
TX	Green	On	Laser On
		Off	Laser Off
Link/Act	Green	On	Link up
		Off	Link loss or RX power lower
		Flash	Sending and Receiving Data
FAN1, FAN2	Green	On	Normal
		Off	Fan failure

Console Management

When placed in the 1-slot CTS-2AC chassis, this card can be locally managed by connecting a simple serial terminal such as a notebook computer that has an RS232 port (RJ45 Connector) or via a commonly available USB to RS232 adapter. In Windows XP, HyperTerminal is an application available for emulating a serial terminal. You can also search for TeraTerm or PuTTY which are free alternatives, especially if the operating system is Vista or Win10.

Settings

Baud Rate: 115200

Data bits: 8

Parity bits: none

Stop bits: 1

Handshaking: none

Emulation: VT-100
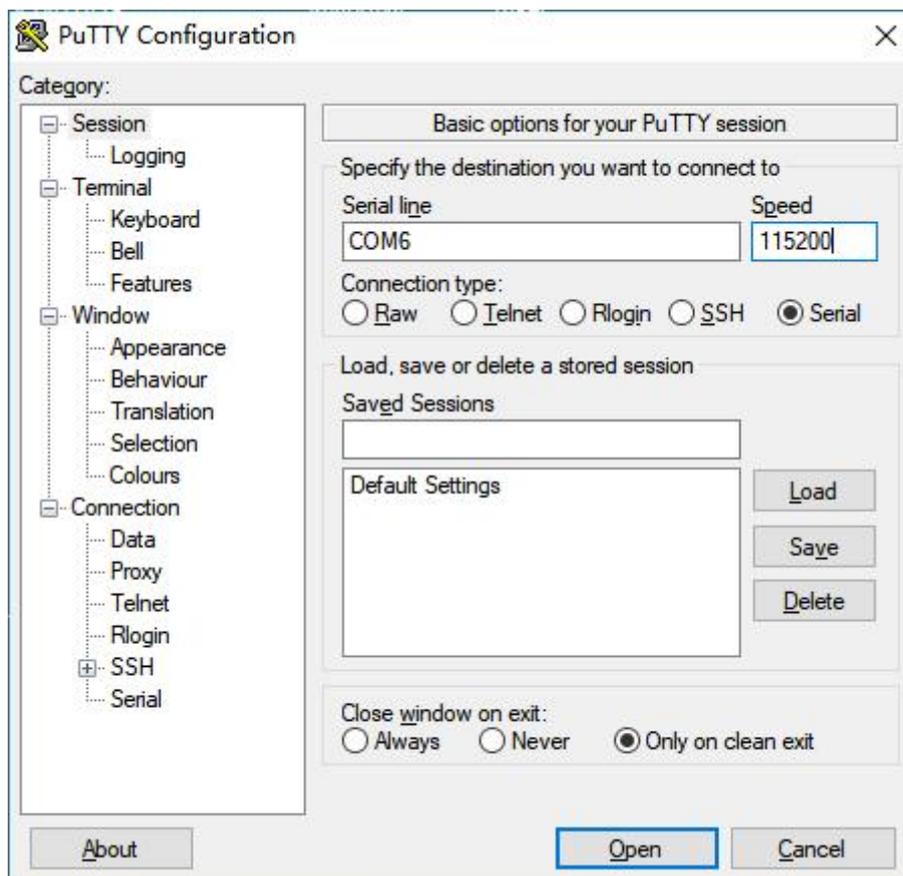
Figure 6. Putty Configuration

Connect the serial cable to the CTS-2AC RJ45. Run the terminal emulation program,Press ENTER to get started:

When prompted with **Username, Password, enter "superuser", "12345678" or "admin" username and password: "123"**

"superuser"have privileges upgrade the device and reset the "admin" user password,but "admin"username has not

Then type **menu**, press [Enter] to display the "Main Menu" screen. The following is an example.
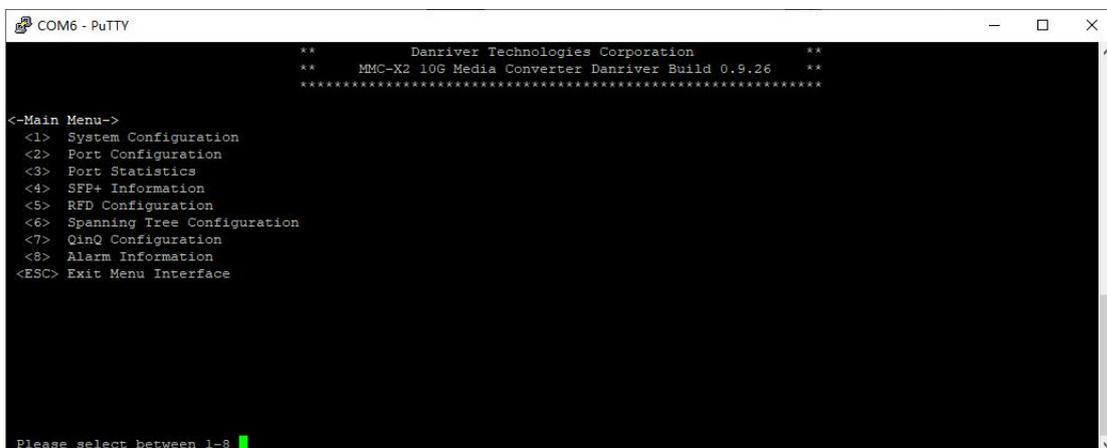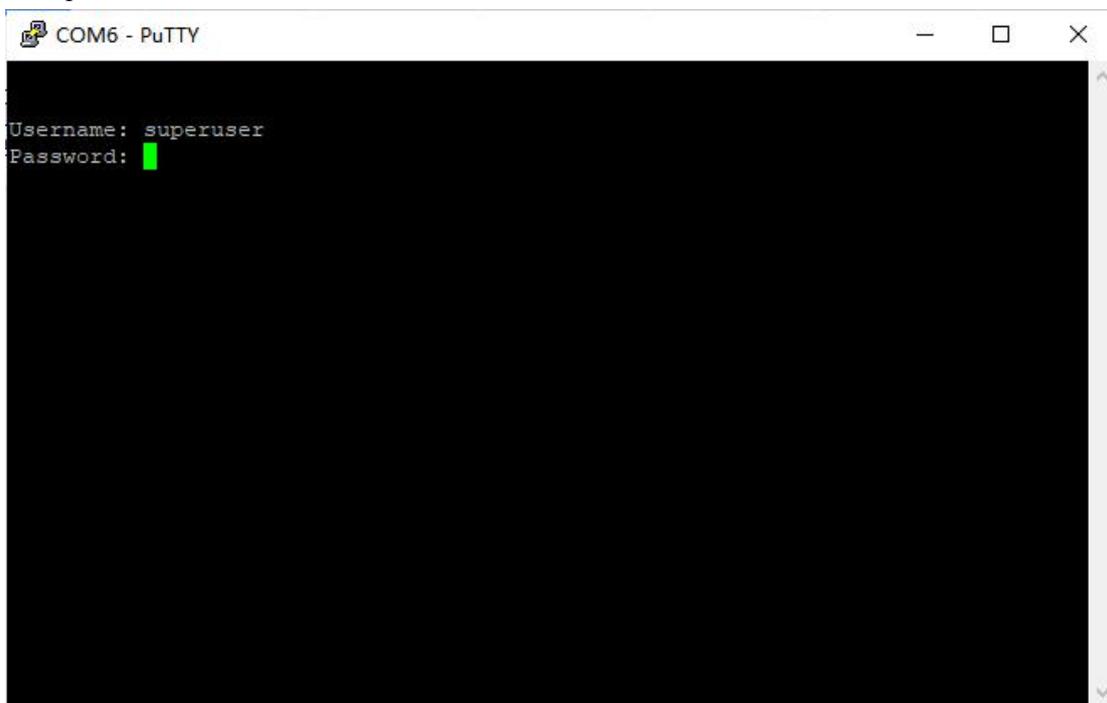
Figure 7. Main Menu Console Screen

Operation

Select any of the menu items by keying in the menu item number or letter. Use the [ESC] to return to a previous menu or Exit Menu Interface. Any setting is immediately applied to the Media converter's circuitry,the one of the parameter settings is selected is to be saved in non-volatile RAM (NVR).

Explanation of Settings:

<1> System Configuration：This can configure IP address, Management VLAN,Password, firmware download, SNMP configuration, Date/Time configuration, Syslog configuration, Reset Device, Reset to Factory default configuration, Reset of password of user admin

<2> Port Configuration:

- **Disable LAN Port[Enable]:** This will enable or disable LAN Port of the card. When inactive, no transmissions will be able to occur.

- **Disable WAN Port[Enable]:** This will enable or disable WAN Port of the card. When inactive, no transmissions will be able to occur.

- **Enable LAN port internal loopback[Disable]:** Enable or disable Loopback test function.

- **Enable WAN port internal loopback[Disable]:** Enable or disable Loopback test function.

<3> Port Statistics: View LAN and WAN   Port Tx/Rx Statistics

<4> SFP+ Information: View SFP+ DDMI information

<5> RFD Configuration: Set up Remote Fault Detection.

<6> Spanning Tree Configuration: Disable/Enable spanning tree in LAN or WAN port

<7> QinQ Configuration: Disable/Enable QinQ and Set QinQ VLAN

<8> Alarm Information: View alarm information, Notice, Warning

<ESC> Exit Menu interface or Go to Previous Menu

Digital Diagnostics in SFP/SFP+

Modern optical SFP/SFP+ transceivers support digital diagnostics monitoring (DDM) functions according to the industry-standard SFF-8472. This feature is also known as digital optical monitoring (DOM) and gives the end user the ability to monitor real-time parameters of the SFP or SFP+, such as optical output power, optical input power, temperature, etc.

Figure 8. *Example of reading Digital Diagnostics in SFP*

Parameters are read from any MSA (Multisource Agreement) compliant SFP+ module. Extended information is only available in modules which support DDMI function.

Loopback Testing (LBT)

The loop back capability of the MMC-X2 is useful for debugging a dysfunctional link, or when commissioning a site. In loopback mode, the signal is routed into the switch circuitry and then routed back to the signal source, below LAN port loopback and WAN port loopback:
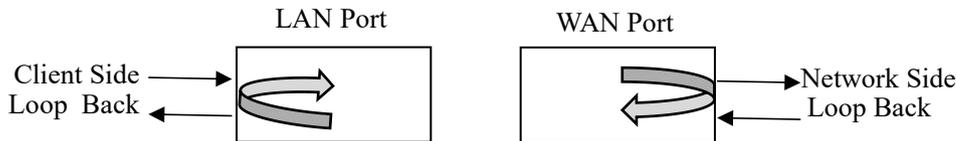
Figure 9. Loopback Test

MMC-X2 model can do loop back through one of the management interfaces i.e. local console or WAN port. The loop back function is enabled by using a serial terminal connected to the RJ45 on CTS-2AC housing, via the terminal menu system,The card can perform all setting functions.

Stand-alone Firmware Upgrading

The MMC-X2 card may be firmware upgraded using http download via its WAN Port when placed in CTS-2AC. The user may use Ethernet port such as a notebook computer that has a RJ45 port or via a commonly available USB to RJ45 adapter. Then, user may use a Web based (HTTP) connection with any available browser to start Firmware upgrade process.

Quick Procedure

1. In the Main Page, Click Maintenance>Software>Download tree items in the left to get Firmware upgrade page. Then, select the firmware file that you want to download.
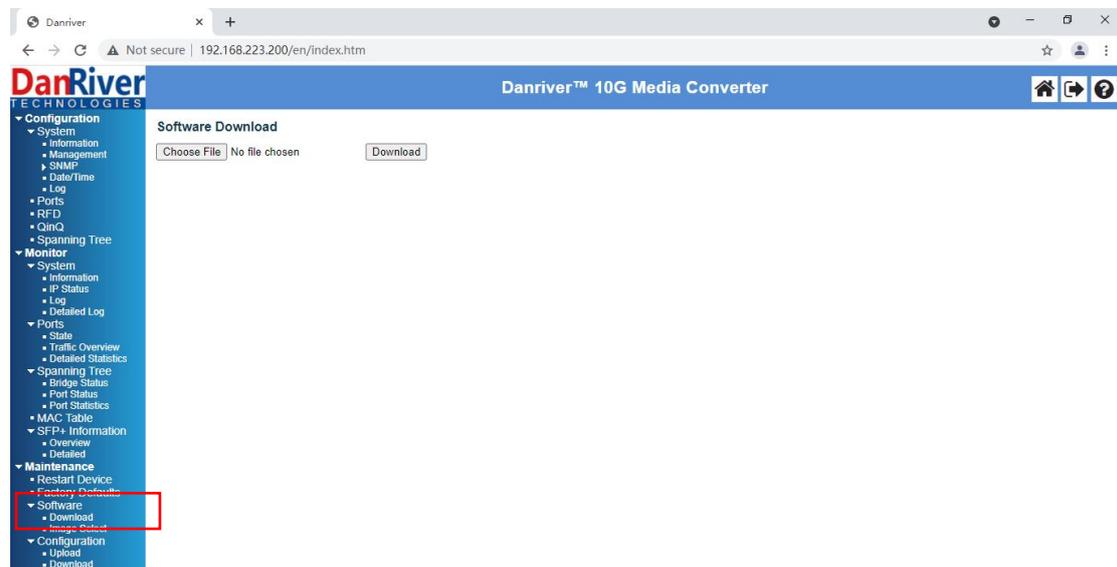
Figure 10. Firmware Upgrade page
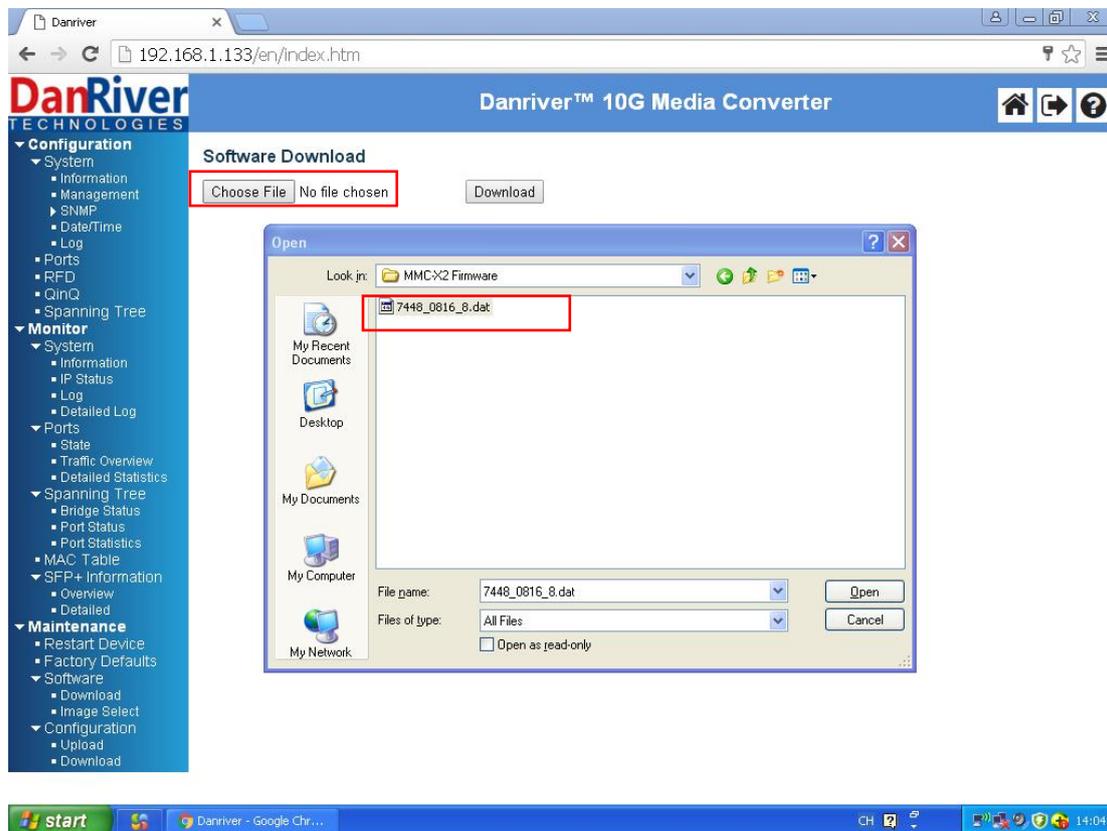
Figure 11. Select the firmware file

2. Start downloading new firmware image
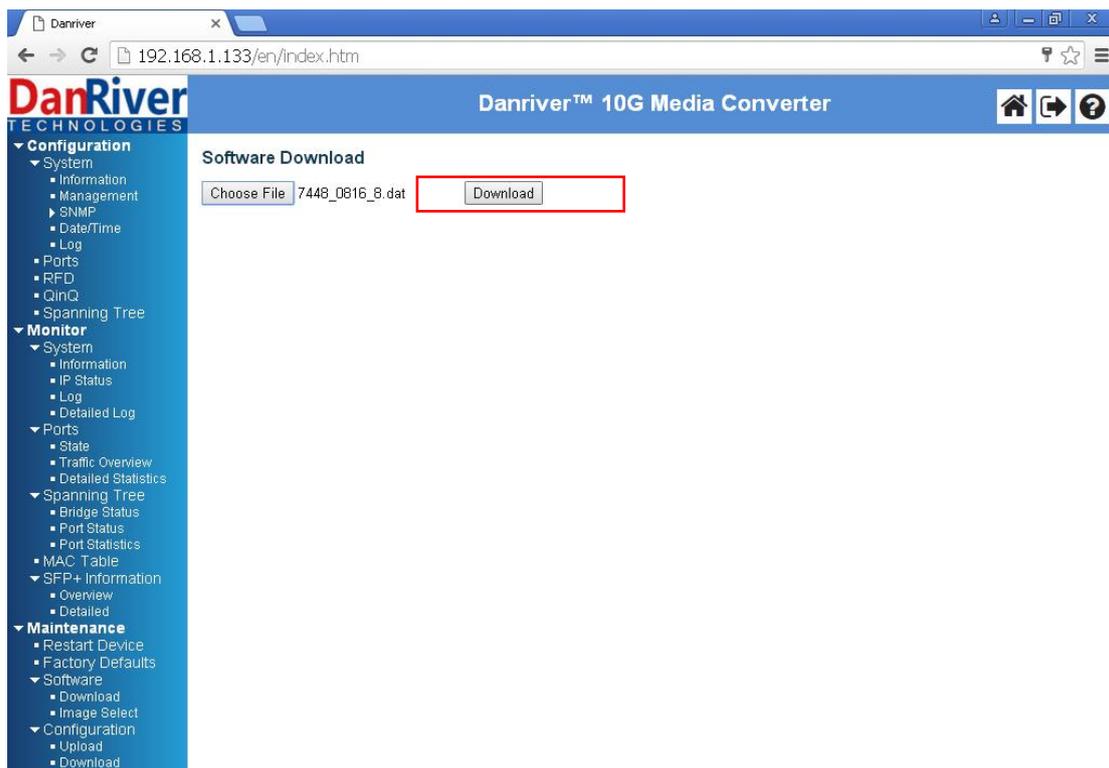
Figure 12. Download

The download should complete in only a couple of minutes. **DO NOT** disconnect or pullout the card during the upgrade process.

3. Check the firmware version after completing the firmware download process
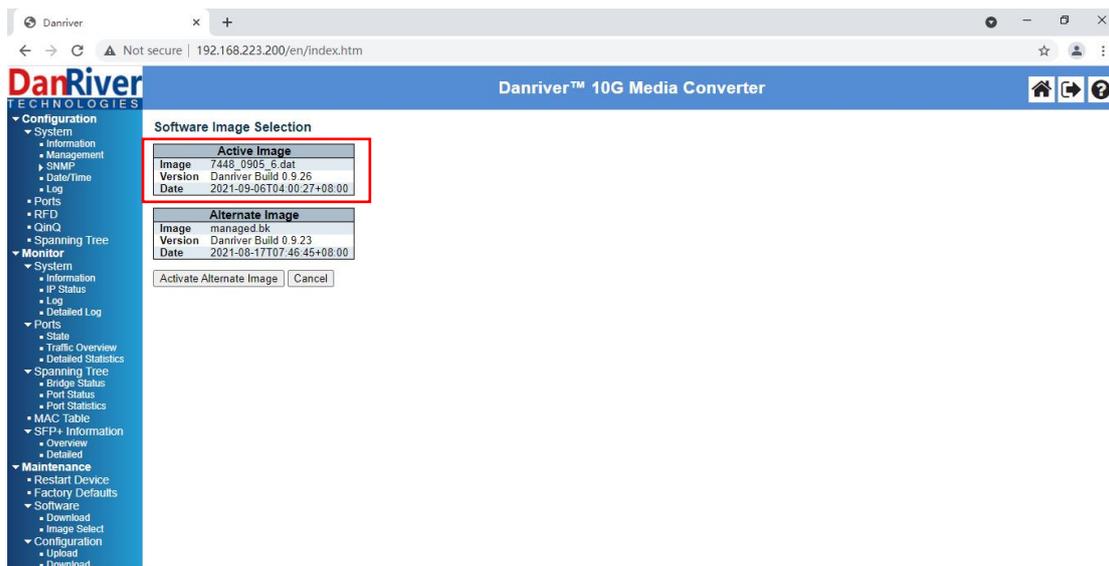
Figure 13. check Active Image version