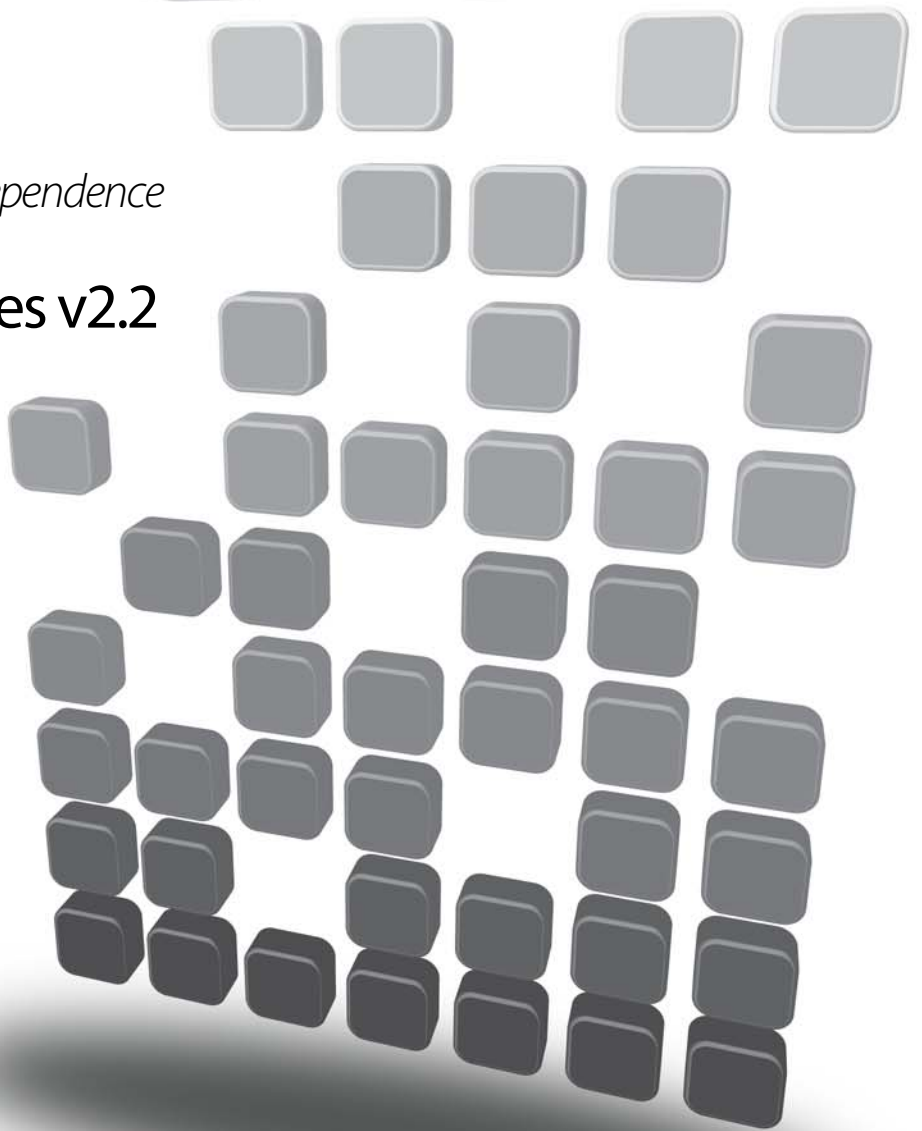


DarkStar®

Lighting the path to network independence

Release Notes v2.2



0

CHAPTER

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Release Notes

This chapter highlights release information for v2.2 DarkStar products.

1.1 DXMOS Upgrade Instructions

The following information details the procedure for upgrading from DXMOS v2.1.x to DXMOS v2.2.0.

1.1.1 Introduction

Upgrade-2.2.0 is a software tool that contains all data necessary to upgrade from DXMOS v2.1.x to DXMOS v2.2.0 software and gateway. This installation program must be run from the console; it will not work over telnet or ssh.

It may be helpful to understand that DXMOS software is stored redundantly on two independent flash chips on DarkStar systems, known as "startup flash" and "factory flash." Startup flash stores the software that runs the system. Factory flash stores a backup copy of the software that can be used to restore startup flash.

Installation of DXMOS v2.2.0 with the Upgrade-2.2.0 tool is a two step process. It runs first on startup flash and then runs a second successive time on factory flash. The program will automatically determine which flash chip to use during each part of this two stage installation.

Upgrade-2.2.0 should preserve custom system configurations on the startup flash chip.

1.1.2 Download

You can obtain Upgrade-2.2.0 via XKL's web site in the Support section. DarkStar customers will receive notifications of updates as they become available, which will include login credentials for the download and further detailed instructions.

Once you obtain the update files, place the upgrade.exe file on the target TFTP server. Then verify the integrity of file using the checksum included in the upgrade kit.

1.1.3 Upgrade Procedures

To upgrade to DXMOS v2.2.0, carefully follow these procedures:

1.1.3.1 Back Up DXMOS

Create a remote backup of the DXMOS configuration file.

1.1.3.2 Establish Server Connection

Ensure the DXMOS system can reach the TFTP server, either by being on the same subnet or by provisioning static routes. The TFTP boot facility cannot use dynamic RIP routes. If you change any network configurations to ensure connectivity, be certain to save the settings using the write memory command.

1.1.3.3 Start Boot

Bring up the Boot prompt by entering enabled mode and issuing a reload command from within DXMOS. Boot starts and attempt to load DXMOS. While attempting to load, the following message appears for 10 seconds:

```
[Type Ctrl-C to abort, or any other key to boot now.]
```

Type CTRL-C to halt the process and leave the system at the Boot prompt.

1.1.3.4 Download Installer

Download the Upgrade-2.2.0 from the TFTP server using the following command where the network address in the example is replaced with that of the TFTP server. This process will last several minutes, during which time console output will display a succession of periods (.....) indicating that the transfer is in progress.

```
Boot> boot tftp 10.1.1.1 upgrade.exe
```

Do not interrupt the TFTP transfer. If the process is interrupted, you must reload boot using the following commands:

```
Boot> enable wheel  
Boot# reload
```

1.1.3.5 Run Startup Flash Upgrade

After Boot has loaded Upgrade-2.2.0, the program will run and prompt a last-chance abort message before proceeding. This process will last several minutes, during which you will see the console output change as the process progresses. A full sample of console output during a successful upgrade is available in the upgrade kit.



WARNING

Do not interrupt the upgrade process. Doing so may cause serious errors.

When Upgrade-2.2.0 runs on the startup flash, the following events occur:

- Saves current software
- Saves configuration file and SSH key files
- Partitions flash and creates a file system
- Saves DXMOS v2.2 software

1.1.3.6 System Reload

When this first stage of the installation is completed, the system will reload. Boot will then load the new DXMOS v2.2 software and run it.

1.1.3.7 Verify Startup Flash Upgrade

Once reload is completed, verify the software version using the following command:

```
localhost> show version
```

In the console output, verify the following:

- Gateware is startup-gateware
- Version is V2.2.0

If the upgrade of startup flash in this first stage of the procedure was unsuccessful, the reload will fail to load the new software and will instead revert to the original factory flash. Beware that if the system reverts to factory flash, you may lose custom configurations which also result in a loss of traffic.

1.1.3.8 Downgrade (if required)

In the unlikely event that the upgrade procedure fails, you may want to downgrade to the previously running version of DXMOS. Upgrade-2.2.0 can restore the original installation using files saved during the upgrade process. To perform a downgrade, use the following command at the Boot prompt:

```
Boot> boot tftp 1.2.3.4 'upgrade.exe'/s:+4
```

Do not interrupt upgrade. Once the downgrade is complete, the system will return to the Boot prompt and you must reload it manually using the following commands:

```
Boot> enable wheel  
Boot# reload
```

1.1.3.9 Run Factory Flash Upgrade

If the upgrade to startup flash was successful, repeat the steps outlined in sections 1.1.3.3 through 1.1.3.6 to perform the upgrade on the factory flash chip.

If at this stage, Upgrade-2.2.0 recognizes that it was booted from the factory flash, it will stop the upgrade, since booting from factory flash implies an installation error as outlined in the details of section 1.1.3.7. When upgrade on the factory flash chip is completed, it will reset the system and load the new DXMOS v2.2.0 software.

1.1.3.10 Verify Factory Flash Upgrade

Once reload is completed, verify the software version. To verify factory flash upgrade, you must force a reload using the factory software:

```
Boot> enable wheel  
Boot# reload factory warm
```

While attempting to load, the following message appears for 10 seconds:

```
[Type Ctrl-C to abort, or any other key to boot now.]
```

Type CTRL-C to halt the process and leave the system at the Boot prompt.

```
Boot> boot file flash1:2:dxmos/dxmos.exe
```

If the upgrade of factory was unsuccessful, the reload will fail to load. If failure occurs, please refer to the downgrade instructions in step 8.

Once reload is completed, verify the software version using the following command:

```
localhost> show version
```

In the console output, verify the following:

- Gateware is factory-gateware
- Boot string is file flash1:2:dxmos/dxmos.exe
- Version is V2.2.0

1.1.3.11 Post-Installation Configuration

If special modifications were made to network settings in Step 2, be certain to restore them at this time.

Because this installation of DXMOS upgrades from fixed file locations to a new file system, commands such as `boot flash startup-image` have been replaced with new commands that use name files instead of fixed file locations. For example, instead of using `boot flash startup-image`, use `boot file dxmos/dxmos.exe`. The readme file in the kit includes additional information regarding name files.

1.2 New Features

The following features have been added in DXMOS v2.2.

1.2.1 Commands

The following commands have been added or modified in DXMOS v2.2. Further details for each command can be found the Command Reference Appendix in the DarkStar User Guide.

1.2.1.1 aaa authorization exec

When set, a user is immediately placed in enabled mode upon login, provided that the authentication server declares that the user has sufficient privileges. For radius, a successful authentication request for a user holding privilege level 15 will result in an enabled login.

1.2.1.2 banner motd

Specifies a display message that appears to the user at login.

1.2.1.3 dir

Provides a directory listing for the specified file or directory. If no argument is present, provides a listing of the root directory.xxx

1.2.1.4 checksum

Calculates the md5sum and sum results for the given file.

1.2.1.5 copy

Copies configuration data, software images, and gateway images between storage areas.

1.2.1.6 delete

Deletes the specified file from the file system, if the file is not read only.

1.2.1.7 ip helper-address

The argument *helper-address* has been added to the `ip` command. Any DHCP request received on this interface will be forwarded to the specified ip address, which should be the DHCP server providing addresses for the subnet connected to the interface.

1.2.1.8 show debug

Displays a list of debug flags currently enabled.

1.2.1.9 show file

Shows information pertaining to the file system.

1.2.1.10 snmp-server community string

A *community string* argument has been added to the `snmp-server` command. It starts a read-only SNMP server using the community string specified by string. The `no snmp-server community` command turns off the SNMP server.

1.2.1.11 show flash

Displays information about flash chips in the system. The default output is a listing of each flash partition and the files it contains.

1.2.1.12 tftp { get | put }

The `tftp` command has been modified. its use with `get` and `put` arguments retrieves or sends files from one location to another via the DarkStar network.

1.2.2 Flash File System

An integrated flash file system facilitates data management: easy access, backups, simplified naming conventions, and the ability to boot any image, among other features. Files may be copied, uploaded, downloaded, and check-summed to ensure operational integrity.

1.2.3 Installer

A new installer is provided to turn software updates into a seamless task.

1.3 Updates

Updates in this release resolve the following caveats noted in v2.1.3.

1.3.1 AAA & RADIUS

When logging a failed RADIUS attempt to Syslog, the RADIUS server IP address reported will be incorrect and shifted four bits to the left. For example, if it reports an address of 160.240.22.48, the address is really 10.15.1.99.

1.3.2 aaa authorization exec

When `aaa authorization exec` is enabled, an accounting start record will not be sent when a user logs in with enabled privileges.

1.3.3 Accounting Packet Report

`Acct-Status Type`, `Service-Type`, and `NAS-IP-Address` are incorrectly reported in the transmitted accounting packet.

1.3.4 Deleting Host Name

If the SNMP server is configured with a host name instead an IP address, the only way to delete it is to first change the `snmp-server host` configuration to an IP address and thereafter delete it. For example, to remove `snmp-server host hostname`, issue the following commands:

```
localhost CONF# snmp-server host 1.1.1.1
localhost CONF# no snmp-server host
```

1.3.5 Duplicate Boot Entries

XKL does not recommend adding duplicate boot entries to the configuration with the `boot` command. The following example illustrates a redundant boot entry:

```
localhost CONF# boot flash startup-image
localhost CONF# boot flash startup-image
```

Multiple identical boot entries are permitted, but not recommended as they serve no useful purpose.

1.3.6 Error Forwarding

The error forwarding feature may cause I2C communication issues with the wave (Fujitsu) XFPs. To re-establish I2C communication, you must either:

1. Power cycle (full restore), or;
2. Send traffic to interface (restore but missing interface information due to caching)

1.3.7 Loopback IP Address

There is no command to remove a loopback IP address. The workaround is to remove the loopback interface, as in the following example:

```
localhost# conf
localhost CONF# int loop 0
localhost CONF-INT-LOOPBACK[0]# ip add 1.1.1.1/24
localhost CONF-INT-LOOPBACK[0]# exit
INTERFACE__SetSelf: set Interface address to 1.1.1.1
localhost CONF# no int loopback 0
localhost CONF# do sh int loopback 0
Loopback 0 is up, line protocol is up,
Internet address is 0.0.0.0/0
Hardware is Loopback,
Last State Change: 0:00:00:55 ago
```

1.3.8 Recovery-Mode Command-Line Prompt

The appearance of the command line prompt in recovery mode is inconsistent with its appearance during normal operation of the DarkStar system. The final character of the prompt, which normally indicates whether the command line is in disabled mode (>) or enabled mode (#), changes as the system enters and exits configuration mode via the `configure` and `exit` commands. Disabled and enabled have no meaning when the DarkStar system is in recovery mode; Regardless of the appearance of the prompt, the only commands available are those in the limited set allowed by recovery mode.

1.3.9 User Login with Trailing Space

When logging on to a DarkStar system, entering a trailing space behind the username prevents login. Be sure to type only the username followed by enter.

1.4 Caveats

The following caveats related to the release of DXMOS v2.2 should be observed.

1.4.1 AAA Administration

The following caveats related to AAA behavior should be noted.

1.4.1.1 RADIUS & Syslog

When logging a failed RADIUS attempt to Syslog, the RADIUS server IP address reported will be incorrect and shifted four bits to the left. For example, if it reports an address of 160.240.22.48, the address is really 10.15.1.99.

1.4.1.2 NAS-IP-Address

The NAS-IP-Address will be wrong on systems originating a AAA packet from an interface with an address between 128.0.0.0 and 255.255.255.255.

1.4.1.3 Constant Login Attempts

Constant login attempts may casue radius accounting packets to be missing the relevant user id.

1.4.1.4 aaa authentication

When AAA authentication is not required, username and password prompts still appear, however authentication is not performed.

1.4.2 Amplification

The following caveats related to amplification behavior should be noted.

1.4.2.1 show edfa Setpoint Reporting Error

The output of `show edfa` displays the actual pump current in the setpoint field rather than the configured setpoint value.

1.4.2.2 fiber-type Error

The Raman configuration sub command `fiber-type` does not currently work properly and will generate a command error when used. If a configuration is saved including this command, it will cause a similar error upon reload. Raman amplifiers will use the default value of SMF until a corrective release of DXMOS is issued.

1.4.2.3 Raman Status Reporting

Raman amplifiers may report amplification down while pumps are on in manual mode.

1.4.2.4 no apr osc detection Command

Using the `no apr osc detection` command will prevent the Raman amplifier from completing the auto-startup procedure. It is recommended that this feature not be disabled. The feature is enabled by default.

1.4.2.5 EDFA Output

Upon initial power-up of the system, EDFA output will be enabled by default until system software is loaded. This behavior could present operational or diagnostic issues because the output of the amplifier during this period may present unexpected values.

1.4.2.6 LED Operation with DRA-EDFA

In DRA systems that also contain an EDFA, LED lights pertaining to EDFA operation will not function.

1.4.2.7 Commands to Non-Existent Amplifiers

Issuing commands to non-existent amplifiers will not return an error message. Therefore, you should otherwise verify the existence of amplifiers in your system and not depend upon command-line responses.

1.4.3 APP (Automatic Path Protection)

The following caveats related to APP should be noted:

1.4.3.1 APP & 3G Interface

DarkStar systems do not prevent setting protection on a self-connected 3G interface. However, such settings result in an APP group that may behave oddly. The following example connects client interface 6 to itself, then forms a protected APP group:

```
localhost CONF# conn client 6 client 6  
localhost CONF# app client 6 client 7
```

The resulting APP group from this example has problems, such as an APP switch changing one side of the connection, but not the other.

1.4.3.2 APP Error Messages

If a reload occurs while an app is using the protection interface due to failure of the primary interface, spurious switch connect error messages may occur. These messages may be ignored. They only occur because the required connection already exists. The following is an example of such a message:

```
Switch Connect Error: Can't connect, interface already member of another  
connection. (Client 0, Wave West 0)
```

```
Blocked by connection Client 0 -> Wave East 0
```

```
Switch Connect Error: Can't connect (Client 4, Wave East 4) due to APP  
resource conflict.
```

1.4.4 BERT

The following caveats related to BERT behavior should be noted.

1.4.4.1 Error Messages upon Ending BERT

When a BERT is ended, either by using the `no bert receive` command or due to a reload while running, the resulting report may include the following error messages, which are spurious and may be ignored:

```
VSC8479: Error 2 in I2C__LoadValueWait
```

```
VSC8479: Error 2 in I2C__LoadValueWait
```

1.4.4.2 BERT on DXM10 Systems

On DXM10 systems, `bert transmit` on any transport interface will by default cause other unused wave transport interfaces with matching encapsulation to lock and generate the same PRBS test pattern. Unused transport interfaces which do not match the encapsulation of the interface with which `bert transmit` was issued may report unexpected line status such as `Down`.

1.4.4.3 BERT on DXMh Systems

On DXMh systems, only 2 bert operations (1 transmit and 1 receive or 2 transmits) can be present on client interfaces at a time. This limitation on the number of transmits does not apply to wave interfaces.

1.4.4.4 BERT Setup Errors

During the BERT setup process, command errors that occur are most likely caused by existing switch connections and will be indicated with a numerical code.

1.4.4.5 APP & BERT Diagnostics

APP and BERT diagnostic features do not interoperate properly and thus are disallowed to do so by the system.

1.4.4.6 BERT Results

The `bert` command is still under development. On DarkStar systems that support BERT testing, only tests with a result of 0 errors can be considered accurate. If the BERT test results in anything other than 0, it may be preferable to conduct BERT testing with external equipment.

1.4.5 Boot

The following caveats related to boot behavior should be noted.

1.4.5.1 Ignorable Boot Upgrade Message

After installing DXMOS v2.2.0, the following error message will be printed byBoot, but is not of importance and may be ignored:

```
Bad value in old PC, 10221276, should be 10221275.
```

1.4.5.2 LED Code

During system reload, front-panel lights may not correctly represent the system state. Once the system is fully operational, they will be accurate.

1.4.5.3 Infinite Loop

If a DarkStar system is configured exclusively with invalid boot targets that are then saved to startup-config using the `write memory` command or which are present in the remote configuration acquired through DHCP and TFTP, the bootloader software enters an infinite loop of failed boot attempts. When this happens, messages such as the following appear on the console:

```
Boot has exhausted its collection of executable images.  
[Delaying AUTO-BOOT for 600. seconds.]  
[Type Ctrl-C to abort or any other key to boot now.]
```

To interrupt the reboot cycle, press `CTRL+C`, then enter a `boot` command at the `Boot>` prompt. The most typical valid boot command is `boot flash startupimage`.

1.4.6 Custom Clock Frequencies

When specifying custom clock frequencies for 3GHz rated SFPs, the user interface accepts frequencies in the range of 42000 to 3200000kHz. While it is possible to enter any value in that range, only settings in the following ranges should be expected to operate properly:

- 42000 to 66667kHz
- 83333 to 400000kHz
- 500000 to 800000kHz
- 1000000 to 1600000kHz
- 2000000 to 3200000kHz

1.4.7 DHCP

When setting up a network in a DHCP pool, ensure that the specified network matches the same network and mask length of the interface on which DHCP will be active. In addition, DHCP, should only be used on /29 and larger subnets.

1.4.8 DXM Show Commands

The `show interfaces wave` command may report incorrect temperature readings in the `Aux1` field for some lasers, since there is variation in the way that lasers from different manufacturers report temperature data. Instead, use the value reported in the `Temperature` field.

1.4.9 File Management

The following caveats related to the file system should be noted.

1.4.9.1 Copying over /dump/dump.exe

Do not copy a file over `/dump/dump.exe`. This file is preallocated for memory dumps. If damaged, it will become necessary to remove `/upgrade-2.2.0` and run upgrade again to repair the installation.

1.4.9.2 tftp Transfer with Small Files

With small files, the full tftp transfer may occur before the flash write is even started. The message `File transferred successful...Completing flash write` merely indicates the network transfer is successful. If subsequent to seeing this message the write fails, for example because flash is full, an error message may not be reported to the user.

1.4.9.3 tftp & copy Commands with Full File System

If the file system on a system becomes nearly or completely full on the DXMF5(P) type partition on flash 0, `tftp` and `copy` commands will not operate reliably and may possibly fail to report an error message. Output of `show file system` will allow one to see current filesystem usage. If such difficulties arise, please remove unneeded files from the system with the `delete` command to allow for proper operation.

1.4.9.4 Remote tftp Files

Remote tftp files for both `put` and `get` operations must be located in the server's tftp root directory. Files located in a subdirectory as indicated with a `/` will not be successfully retrieved/written.

1.4.10 Hardware

The following caveats related to hardware on DarkStar systems and networks should be noted.

1.4.10.1 show led Command Error

The `show led` command may not always correctly reflect issues with fan modules that may be causing led blinking. The command `show environment fans` will provide full output of current fan states.

1.4.10.2 Reloading During Flash Memory Operation

Do not reload a system, either via a warm or cold reboot, while flash memory is reading or writing data. Doing so may cause the flash memory to become unresponsive and the system may revert to factory reload or the recovery console upon reload. The solution to this issue is to reload the system a second time after such an error, which should allow it to reload correctly.

1.4.10.3 Power Message

It is possible when unplugging the power supplies to see the `Power Supply n` has no AC messages twice in rapid succession.

1.4.10.4 Hardware Shutdown State

If the system is in a shutdown state, power must be manually cycled by either pressing the side button or by disconnecting both power modules. A system in a shutdown state will have no console access and only the RED LED on the front panel will be illuminated. Fans will also be turned off in a system in a shutdown state.

1.4.11 Loopbacks

The following caveats related to loopbacks should be noted:

1.4.11.1 Loopback in DXMOS Configuration

If configured, a loopback interface will appear in a DXMOS configuration twice rather than the one expected occurrence.

1.4.12 Management Ethernet & OSC Interfaces

The following caveats related to management Ethernet & OSC interface behavior should be noted.

1.4.12.1 Help Error

With some commands, typing ? after entering an invalid argument does not return help text as expected and may only partially refresh the prompt. If the prompt becomes garbled, type CTRL+R to refresh the prompt.

1.4.12.2 Reporting Inactive OSC Interface

The output of `show ip route` on a network will still output the IP address of an OSC interface even when the OSC interface has been removed with the `no ip address` command. To entirely remove reference to the inactive route, use the `no interface osc n` command while the IP address is still configured.

1.4.12.3 ssh Sessions & System Performance

An active ssh session may impact system performance. The impact may also increase in proportion to the number of active sessions. For time-consuming operations, such as tftp transfers of large files, minimizing the number of active ssh sessions may improve system performance.

1.4.12.4 Removing OSC Interface IP Address

Removing the IP address of an OSC interface will leave the inactive route in the output report of `show ip route`. However, removing the interface while the IP address is present should remove the entire entry from the `show ip route` output.

1.4.12.5 Ethernet / OSC Peer Result

If gateway is reloaded, the Ethernet and/or OSC ports will be reset, which may cause connection peers to purge routing tables.

1.4.12.6 OSC Flapping

If an OSC interface displays periodic line `DOWN-UP` bouncing, it may be a sign that the remote OSC is unable to reach a line up state, thus indicating an issue between the local OSC transmitter and the remote OSC receiver.

1.4.12.7 AOC Tech SFP Diagnostic Values

AOC Tech SFP modules report incorrect digital diagnostic values. Temperature, Rx Power, and Tx Power may be inaccurately reported. This issue only pertains to OSC modules. It is possible to determine if the DarkStar system contains these modules by running the `show memory int osc` command.

1.4.12.8 Management Ethernet Port Packet Loss

The management Ethernet port may drop packets under high-volumes of traffic. Under normal operating conditions, it is unusual for high volumes of traffic to occur on the management Ethernet port and therefore this behavior will usually not present an issue.

1.4.13 Management Access

The following caveats related to management network access should be noted.

1.4.13.1 Banner Output Error

When configuring a message of the day banner with the `banner motd` command, messages exceeding 2000 characters will be truncated when a user logs in via ssh and messages exceeding 6700 characters will be truncated when logging in via telnet.

1.4.13.2 Character Sets

DarkStar software only supports ASCII characters. Inputting non-ASCII characters may render the terminal unusable. If that is the case, reset the terminal and reconnect to the system as appropriate.

1.4.13.3 Console Output

After commands that print large amounts of text to the console, it is possible that the system prompt will not be fully displayed upon completion. Hitting enter will refresh the prompt to its normal state.

1.4.13.4 SSH Message

During ssh connections, the message `server_request_session: channel_new failed` may be printed to the console. This can safely be ignored.

1.4.13.5 Debug Output with vty

If vty monitor is enabled, debug output will be printed to a telnet session before authentication has been completed.

1.4.13.6 Unresponsive vty Session

In the event a vty session becomes unresponsive, one can clear the vty with the clear line command from the console or another vty, or disconnect the vty session by terminating the remote client. In the second case it may be necessary to wait for a network timeout depending on the state of the session.

1.4.14 Monitoring

The following caveats related to monitoring DarkStar systems and networks should be noted.

1.4.14.1 Syslog or SNMP Error Messages

If Syslog or SNMP is configured on a system that does not have a valid network route to the logging hosts, the following error messages may occur when sending packets from these protocols. Removing those hosts from the configuration or re-establishing the network connection should stop these error messages from appearing. The following is an example of such an error message:

```
File sys.c line 756 inFile sys.c line 757fo File sys.c line 4075  
75          4b          113
```

info	75	4b	113
info	0	0	0

1.4.14.2 Debug Reporting Errors

Enabling debug output in scenarios that generates large amounts of debug statements at high speeds may result in messages containing many dropped characters after a saturation level to the output buffer is reached. Turning off debug modes with `undebug all` will return the system to normal.

1.4.14.3 Monitoring SSH Service

If automatic service monitoring is used to monitor the SSH service of a DarkStar system, you may see spurious console messages similar to:

```
VTY: Attempted connection to VTY0 recorded.  
Connection closed by UNKNOWN:
```

1.4.14.4 Logging Rate Limit

The `logging rate-limit` is effective only in holding off the first packet in a set of packets sent. For example, `logging rate-limit 1` will hold off 1 second before sending another packet, but then will ignore the limit.

1.4.15 Network Counters

Certain network counters are not entirely accurate, including TCP checksum error counts and IP forwarded counts.

1.4.16 Optical Modules

The following caveats related to the performance and management of optical modules should be noted.

1.4.16.1 laser shutdown

When a transport interface is shut down with `laser shutdown` and restarted with `no laser shutdown`, some lasers may briefly display a `Down` line status and a `Fault` alarm status in the `show interface` display. This result is usually a transient condition and does not represent a problem with the laser. If you run `show interface` again a few seconds later, the line will be up and its alarm status will no longer be `Fault`.

1.4.16.2 XFP Auxiliary Values

Auxiliary values reported by XFP modules are dependent on vendor settings and vary in reliability/what is being reported between vendors and specific modules.

1.4.16.3 Uni-Directional Data Flow

A uni-directional data flow may cause an interface to report a false up state. This only applies to XFP modules.

1.4.16.4 Incorrect Wave Receive Power Reading

Wave modules that are not connected to client modules may report incorrect receive power readings. This condition self-corrects as soon as client traffic is detected.

1.4.17 Ping Command

DarkStar systems do not allow communications via the network to its own interfaces. As a result, attempting to use the ping command on a localhost IP address fails.

1.4.18 Recovery Mode

The following caveats related to recovery mode should be noted.

1.4.18.1 “Command Aborted” Message

When continuing from recovery mode, it is possible that you may see one or more `command aborted!` messages on the console. These messages may be ignored. The configuration file itself is processed correctly.

1.4.18.2 “File Transferred Is Empty” Message

If a `configure network` command is successfully issued after DXMOS enters recovery mode and the remote configuration file is zero length, DXMOS will issue a message stating that `file transferred is empty` and will proceed to full operational mode without applying any configuration, even if Boot successfully acquired a configuration via DHCP/TFTP.

1.4.19 Routing

The following caveats related to routing behavior should be noted.

1.4.19.1 Removing RIP Interface

When removing an interface which is running RIP via the `no interface ethernet n` command, it may be necessary to stop and restart the RIP services on the box to be able to correctly receive a route to the now disconnected network via another RIP session. This procedure can be accomplished with `no router rip` followed by all necessary commands to rebuild the RIP configuration, or by reloading the system.

1.4.19.2 Invalid RIP Route Address

RIP incorrectly accepts the invalid route address 240.0.0.0/8.

1.4.19.3 Loopback Interface RIP Reporting

If RIP is set up on a loopback interface, and then that interface is removed, the `show ip routes` command incorrectly reports that a RIP route still exists to the missing interface. This does not adversely affect the operation of routing behavior, although it does affect the information reported by the `show ip routes` command. To restore the display so it shows the correct information, disable the RIP route with the `no router rip` command.

1.4.19.4 no router rip Default

`no router rip` mode will return global RIP version to its default of both versions 1 and 2, regardless of the version number supplied in the command.

1.4.19.5 Default Redistribute Static Metric Value

To change a non-default redistribute static metric value to its default, the default value (1) must be specified on the command line. Issuing `redistribute static` without a metric argument effects no change to the current metric value or will cause it to revert to the previous non-default value, if one was specified.

1.4.20 SNMP

The following caveats related to SNMP behavior should be noted.

1.4.20.1 SNMP Power Reporting Error

The values for `xklPowerVoltage` and `xklPowerCurrent` reported via SNMP are not accurate. The correct values may be obtained from `show environment power`.

1.4.20.2 Loopback Reporting

The loopback interface is not reported by SNMP.

1.4.20.3 SNMP Trap Logging

During system start-up, SNMP traps and syslog messages may not be received because the network routes required to send the traps are not yet initialized.

1.4.20.4 ifInUnknownProto SNMP Metric

The SNMP metric `ifInUnknownProtos` is not currently reliable in counting layer 3 packets that DarkStar systems do not support.

1.4.20.5 SNMP Diagnostic Queries

Although infrequent, SNMP queries used to gather diagnostic information may report incorrect data for certain OID values. For this reason, it is preferable to use the command line to gather critical diagnostic information. However SNMP results in general are still useful for determining long-term system patterns and trends.

1.4.21 Static Host Name

When deleting a static host name entry with the `no ip host` command, you must include the IP address of the entry to be removed. For example, the following command uses 10.9.0.30 as myhost:

```
localhost CONF# no ip host myhost 10.9.0.30
```

1.4.22 Syslog

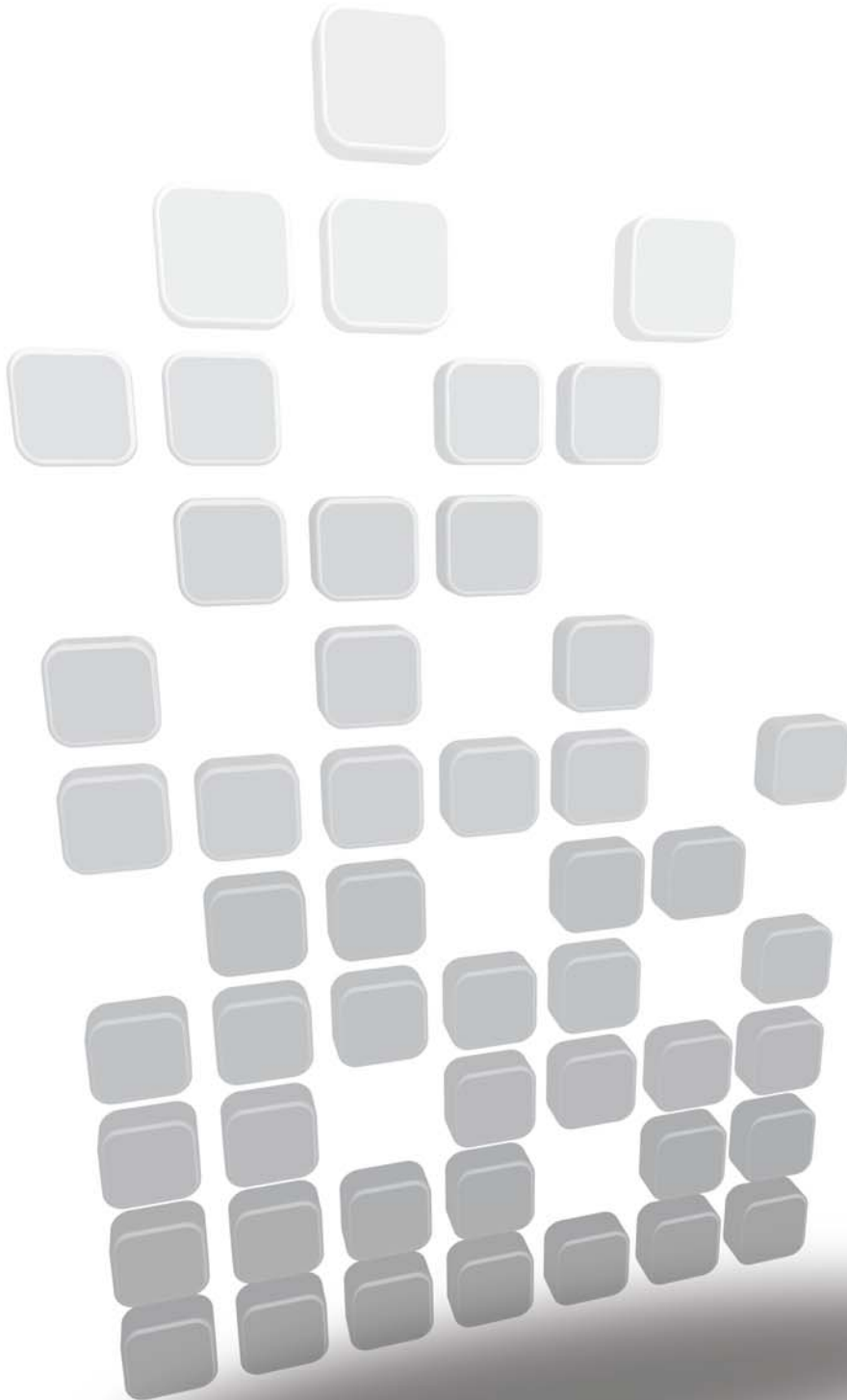
The following caveats related to Syslog should be noted.

1.4.22.1 Interface Name in Link Up/Down Messages

Some system configurations may produce Syslog messages omit interface name from `Link Up/Down` messages. For example, rather than seeing `Link Up: Interface Ethernet 0 0.0.0.0` one would see `Link Up: Interface 0.0.0.0`.

1.4.23 Virtualight

XKL recommends leaving Virtualight mode enabled for client interfaces. If client interfaces are set up with loopbacks, and they have Virtualight disabled, the interfaces may cycle rapidly between up and down states.



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