



## Rugged Operating system on Linux v2.2.1 Release Notes

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### Overview

ROX™ v2.2.1 addresses issues discovered in previous versions.

This “second-generation” operating system software is required by all models within the RuggedBackbone™ product series (RX5000/MX5000/RX1500/RX1501/RX1510/RX1511/RX1512). It is also available as an upgrade to the RuggedRouter® product series (RX1000/RX1100) as well as future models to be released with similar architecture.

RX5000/RX15xx models:

- File/Archive name: imagerr2.2.1.tar.bz2
- Build date: January 12, 2012 - 15:08      File size: 86,309,183 bytes

RX1000/RX1100 models:

- File/Archive name: imagerr2.2.1-i386.tar.bz2
- Build date: January 12, 2012 - 15:22      File size: 84,722,869 bytes

### User Guides

All user Guides are available from the RuggedCom Web site at [www.ruggedcom.com](http://www.ruggedcom.com). Refer to the **Rugged Operating system on Linux v2.2.1** User Guide with this release.

## Overview of ROX™ II features

**ROX v2.x** is not just an update to RuggedCom's current **ROX v1.x** operating-system (built to support the RuggedCom's RuggedRouter RX1000/RX1100 models), but instead it actually is the "second-generation" of the ROX software series (hence the **ROX™ II** moniker). Here some important **ROX™ v2.x** highlights:

- running on MPC8360E processor (RX5000 & RX15xx platforms)
- combining IP routing (L3) and Ethernet managed switch (L2) functionality
- providing a 'Cisco-style' telecom-standard command-line-interface (CLI)
- support for modular designs with 'hot-swappable' hardware modules
- very high Ethernet port-densities
- incorporating Xenomai real-time Linux extension (to satisfy managed switching 'real-time' performance requirements such as RTSP)
- integrated yet modular Layer 3 hardware switching capabilities
- source code reuse of RuggedCom Intellectual Property (IP) with 10 years of proven acceptance under ROS™
- introduces NETCONF for powerful and secure advanced management
- USB port access
- Removable 1GB Compact Flash card for program & configuration storage
- Enhanced reliability through Data ('forwarding') and Control plane separation
- Single configuration file for easy maintenance and upgrades
- Dual-redundant (multiple partitioned) file systems for greatly improved software-upgrade reliability
- New WEB GUI design facilitates dynamic screen updating using Java scripting, AJAX etc.

### **Summary of Changes in the v2.2.1 release (4529)**

#### **L3 Multicast Switching does not obey RSTP port state**

Type: Critical

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4797

The Layer 3 Multicast Switching functionality was not responding correctly to RSTP port state changes. This has been fixed.

#### **Logging to syslog could stop**

Type: Critical

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4167

Logging to syslog and some other logs could stop after a log-rotation operation. This has been corrected.

#### **3G Cellular Modem Improvements**

Type: Major

Products: RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4461, 4462, 4463

The following 3 problems observed with the cellular modem device support have been corrected:

- 'IfOperStatus' shows 'down' when SNMP walk was done on Operational Cellular interface;
- Cell Modem ppp daemon not always running after Reboot
- Cell modem 'Sierra driver' not reloading properly after connection error

#### **Device could reboot due when SNMP Polled at high rate**

Type: Major

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4496

The device could reboot if it was SNMP polled at too high a rate. This has been corrected.

## **Upgrades on RX15xx products with specific Line Modules could fail**

Type: Major  
Products: RX1500, RX1501, RX1510, RX1511, RX1512  
ID: 4510, 4858

Software Upgrades from ROX 2.1.0 to ROX 2.2.0 could fail on devices that included configuration for the following line module types:

4FXnn LM's; and  
SFP LM's

This defect has been corrected in the case of the 4FXnn LM.

In the case of the SFP LM's, the defect only occurs for LM's shipped prior to **August 2011**. The upgrade failure has been corrected; however a defect occurs where these SFP modules will remain off after the upgrade from 2.1.0 or from 2.2.0 to 2.2.1. Please contact Customer Support for a brief procedure that is required after the upgrade to 2.2.1 to bring up these modules.

## **Serial Interface Parity Bit not being sent**

Type: Major  
Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512  
ID: 4745

The Parity Bit configuration for the Serial Interface LM's was not being applied (i.e. No Parity was the only value being applied. This limitation has been corrected (CAS-11286).

## **Serial Interface Support Corrections**

Type: Major  
Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512  
ID: 4395, 4540, 4361, 4429

Several less critical bugs have been fixed related to Serial Interface Support:

- Show command on serial CLI shows empty strings sometimes;
- Serial Port Stats on WebUI are not automatically updated;
- Baud rate not set in hardware after configuration;and
- Serial server buffers data while placing connections.

## **WAN Interface Related Corrections**

Type: Major  
Products: RX1500, RX1501, RX1510, RX1511, RX1512  
ID: 4270

The following WAN Interface related defects have been resolved:

- Enabling on-demand on t1e1 interface of one unit should bring down the t1e1 logical interface on both;
- Time-out occurred when digital /remote loopback test on t1/e1 MLPPP port

## **Fiber Port Link partner shows link Up even though the port is disabled**

Type: Major  
Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512  
ID: 3755,4543

The Fiber Port Link-State related functionality (LinkUp/Down, LFI) has now been corrected.

## **Source MAC address in outbound L3 switched frames is wrong**

Type: Major  
Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512  
ID: 4696

The Source MAC address in outbound L3 switched frames is now correct.

## **Security Rules now further restrict guest and operator roles**

Type: Minor  
Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512  
ID: 4489, 4466, 4511

The security rules for the device now further restrict the operations that operator and guest role users can perform. Included in these restrictions are those that prevent these user types from running the upgrade wizard and from using the Webui's File Upload and Download Tabs. As part of this activity the look and feel of the Webui's Upload and Download Tabs has been modified.

### **CPU Utilization Statistics were confusing**

Type: Minor

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4582

The CPU Utilization statistics are now calculated differently and filtered over a suitable time interval so as not to present confusing information within the user interfaces.

### **Eth port as backup with on-demand enabled does not go down after primary link recovered**

Type: Minor

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4306

The On-Demand feature was not bringing the backup port down again after the primary link was recovered. This is defect has been corrected.

### **GOOSE tunnel statistics not working**

Type: Minor

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4456

The GOOSE tunnel statistics were not working in ROX 2.2.0. They are now available.

### **Improved SNMPv3 Engine ID Discover Command**

Type: Enhancement

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 3839

The command “admin snmp snmp-discover” has been enhanced to better determine the SNMPv3 Engine ID of a remote host. Part of this improvement was the addition of an additional input parameter (“trap-port”).



## Local DNP Master cannot Poll more than one Remote Slave

Type: Enhancement

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 4652

The Local DNP Master was only able to poll one Remote Slave. Now it can poll multiple slaves (CAS10715-JK7K9).

### Known Limitations

The following list describes functionality limitations which are 'known' to exist within this software release.

#### **Only Power Supply Modules are Hot-swappable**

Type: Major

Products: RX5000, MX5000, RX1500, RX1501, RX1510, RX1511, RX1512

ID: 3611

The full hot-swap functionality for line modules is not part of ROX v2.2 feature branch. Therefore for this release, only the Power Supply Modules are hot-swappable.



## **ROX™ II Upgrade instructions**

### **Upgrading ROX™ II using the RuggedCLI Wizard**

ROX II supports a ‘dual-partition’ file- system offering storage redundancy and rollback features. Software upgrades are always performed to the ‘alternate’ partition in order not to disturb your current running system context while will remain operational and intact during the upgrade progress. It should be noted that the upgrade process may also be launched through the WWW and NETCONF interfaces. Details on upgrading using these interfaces are available in the ROX 2.2.0 User Guide.

Follow the steps below to perform an upgrade:

1. From the RuggedCLI prompt enter configuration mode:

```
ruggedcom# config
```

2. Launch the upgrade wizard with the following command:

```
ruggedcom(config)# wizard rox_upgrade
```

3. You will then be prompted to enter the URL of your upgrade server as well as the target release version:

```
The upgrade repository url is set to: http://10.200.17.235/rox/releases
```

```
Press <ENTER> to accept this or type a new address to change it:
```

```
http://10.200.17.235/roxii/releases
```

```
changing repository
```

```
The software release you are upgrading to is: 2.2.0
```

```
Press <ENTER> to accept this or type a different version:
```

```
Warning:
```

```
You are about to commit changes to upgrade settings. If any other modifications to the candidate database are pending, they will be committed too.
```

```
Continue?
```

```
(y/n): y
```

4. The upgrade process will then proceed through three distinct phases: transferring the file-system to the alternate partition, downloading all updated and new packages and installing the packages to the ‘alternate’ partition:

```
Checking for a more recent version of the upgrade system
```

```
Already running the most recent version of the upgrade system
```

```
*****
```

```
Launching ROXII Upgrade.....
```

```
Upgrading system to Partition 2
```

```
Estimating size of upgrade. This may take a few minutes....
```



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```
21 packages to install, 13220468 bytes to download
6353 files, 301611585 bytes will be copied to Partition 2
Starting upgrade...
```

```
Preparing to transfer files to alternate partition. This may take a few
minutes....
```

```
---- File Transfer Phase: 301611585 bytes, 6353 files ----
```

```
progress: 100%
```

```
File transfer phase complete.
```

```
Starting download of packages...
```

```
---- Package Download Phase ----
```

```
progress: 100%
```

```
Download phase complete.
```

```
Installing packages...
```

```
---- Package Install phase ----
```

```
progress: 100%
```

```
Package installation complete.
```

```
Upgrade to partition 2 completed successfully.
```

```
A reboot is required to run the upgraded partition.
```

```
ruggedcom(config)#
```

5. Reboot the system to boot the upgraded partition

```
ruggedcom(config)# admin reboot
```

### ***ROX™ Firmware/User Guide Version Numbering System***

The ROX™ software is labeled with a three digit version numbering system of the form X.Y.Z where each digit is a number starting from zero. The 'X.Y' digits together describe the functional version of ROX™ whereas the 'Z' digit represents firmware updates made within a specific functional version series.

In this release, the 'X' digit identifies the ROX™ series as being series '2' and therefore referring to RuggedCom's next-generation ROX™ II operating system support for the RuggedBackbone™ and future products to be released. The 'Y' digit identifies the major version number and is incremented for a 'major' functional updates of the software. The 'Z' digit represents the minor version number and is incremented for 'minor' software updates including bug fixes, cosmetic enhancements and other minor issues.

ROX™ user-guide documentation will follow the same format. In general, a user guide will have the same 'X.Y' digits as the firmware to which it corresponds.

## Type of Changes

Each change to the software is categorized according to the table below which provides guidance as to whether the change justifies upgrading. As well, each change lists an internal RuggedCom change number.

<b>Change Type</b>	<b>Description</b>
Critical	Critical changes fix problems that prevent the basic operation of the device and have no workaround. Any critical changes merit a device upgrade under all circumstances.
Major	Major changes fix problems that prevent the basic operation of the device but do have a workaround. Any major changes merit a device upgrade if the workaround is not acceptable.
New Feature	New features add significant new capability to the device. Such changes may change the basic operation of the device, the user interface, and how the device is configured. New features only merit a device upgrade if the feature is required.
Enhancement	Enhancements improve existing device capability and do not significantly change the basic operation of the device, the user interface, or how the device is configured. Enhancements only merit a device upgrade if the feature is required.
Minor	Minor changes fix non-vital problems that may or may not have a workaround. Minor changes do not necessarily merit a device upgrade unless the specific problem applies.
Cosmetic	Cosmetic changes have negligible impact on device operation and include such updates as spelling mistakes, user interface adjustments, and help text improvements. Cosmetic changes rarely merit a device upgrade.
Security	Security changes usually do not have a discernable impact on normal device operation other than to improve the unit's defensive response to known exploits and vulnerabilities. This might include such updates as enhanced protection against newly discovered denial-of-service (DOS) attacks. It is left entirely to the customer's discretion to decide whether or not a security change is appropriate to merit a device upgrade.



## Contacting RuggedCom

For further information on this release or technical support of any nature, please contact RuggedCom at the locations below:

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