FW-000010AU

Release 3.16.0

Software Release Notification

VMS 3.16.0 Software Release

Applicability
Vipersat Management System software release (FW-0000010AU) for networking IP modems. Includes all related software and client applications, ViperView.

Revision History		
Rev #	**Description**	**Date**
V	Release Version - 3.10.2.3033	01/11/2013
W	Release Version - 3.11.0.3172	03/11/2013
Y	Release Version - 3.11.1.3177	04/15/2013
AA	Release Version - 3.11.2.3194	05/27/2013
AB	Release Version - 3.11.3.3264	08/26/2013
AC	Release Version - 3.12.0.3462	01/24/2014
AD	Release Version - 3.12.1.3493	04/04/2014
AE	Release Version - 3.12.2.3554	08/01/2014
AF	Release Version - 3.12.3.3588	08/29/2014
AG	Release Version - 3.12.4.3657	02/13/2015
AH	Release Version - 3.13.0.3886	04/08/2015
AJ	Release Version - 3.12.5.3735	08/17/2015
AK	Release Version - 3.13.1.4263	10/23/2015
AL	Release Version - 3.13.2.4534	08/15/2016
AM	Release Version - 3.14.0.4889	01/23/2017
AN	Release Version - 3.14.1.4907	07/28/2017
AP	Release Version - 3.15.0.5489	07/31/2017
AR	Release Version - 3.15.1.5555	12/11/2017
AT	Release Version - 3.15.1.5564	05/18/2018
AU	Release Version - 3.16.0.6366	07/03/2018

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1.0 Introduction

VMS Generation 3 version 16.0 is the 30th revision of the optimized dynamic bandwidth manager software. Comtech EF Data has continued to enhance the VMS on customer feedback and experience gained from using this network software. The changes in the 3.16.0 release are the result of real world implementations and customer applications.

NOTE: VMS FW-0000010AU does not contain Management Encryption Module. Please contact CEFD customer support for details on how to get this option.

Feature Changes

2.0 Hub Resiliency

The VMS platform now supports a completely revised Hub Resiliency with the addition of Service Area protection. The standard device redundancy was enhanced to provide backing up a group of units on failure across multiple hub uplink and/or downlink channels.

This new hub resiliency feature minimize cost, rack space and power within a network. Managed RF combiner/splitter offers the ability to share one or more backup units among different up/down entrance links using a Matrix Switch. In addition, maintain LAN segmentation adding management of a network traffic switch using VLAN ID/Port control.

Amongst these new changes automatic rearming of failed units increases the reliability reducing the possible downtime by trying to insure that a backup is in place at all times.

Backward compatibility with current redundancy configurations. The upgrade process during installation from older versions of VMS will transform redundancy database to the new 3.16.x structure.

Supported Changes:

- Standard Modem to Multiple Modem (M:N) control
- Standard AC power management providing failed unit shutdown protection
- New H-DNA Service Area, grouping multiple units as a single protection switchover
- New RF Matrix Switch device providing multiple service area control
    - SNMP command support for Quintech™ QRM-2500
- New command control of Network LAN switches
    - SNMP command support for Cisco SG300-xx at minimum
- Updated the ViperView GUI for configuration management and control
- Modified API to support configuration and operational controls via NetVue

2.2 Redundancy Matrix Port Mapping

The following examples are depicted to illustrate configurations that at minimum meet multiple service area system redundancy requirements.

Example 1: Uplink Redundancy with 1 backup

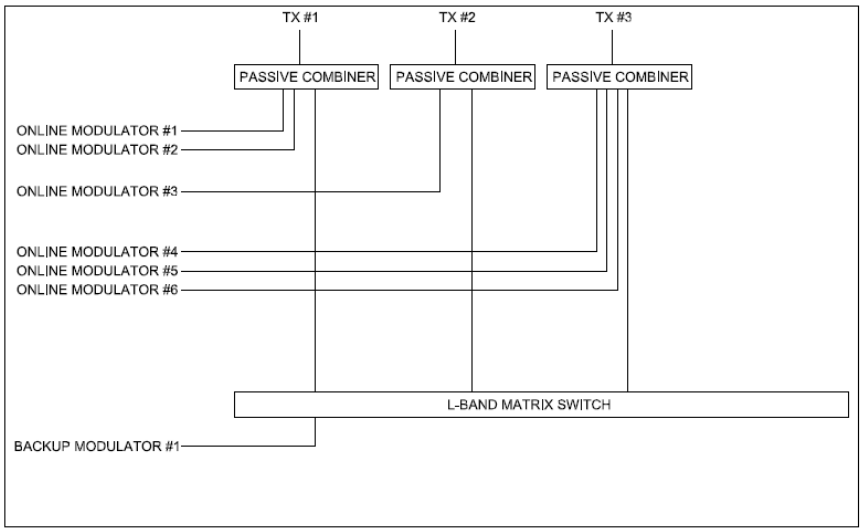


Figure 1, Uplink with 1 Backup

The backup modulator can be switched to TX #1 (in case of modulator #1 or #2 failure) or TX #2 (in case of modulator #3 failure) or TX #3 (in case of modulator #4, #5 or #6 failure) via the matrix switch.

Example 2: Uplink Redundancy with 2 backup

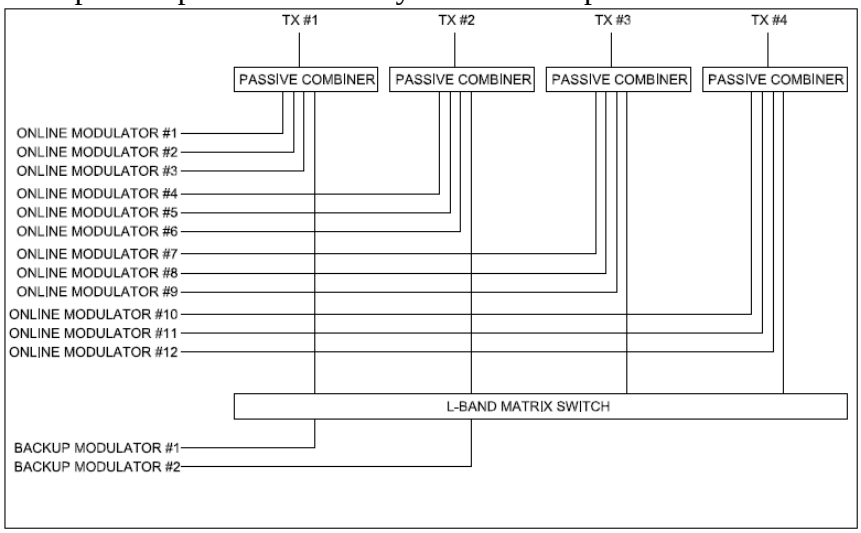


Figure 2, Uplink with 2 backups

This configuration limits both backup modulators to be switched to same uplink simultaneously.

Example 3: Uplink Redundancy with 2 backup

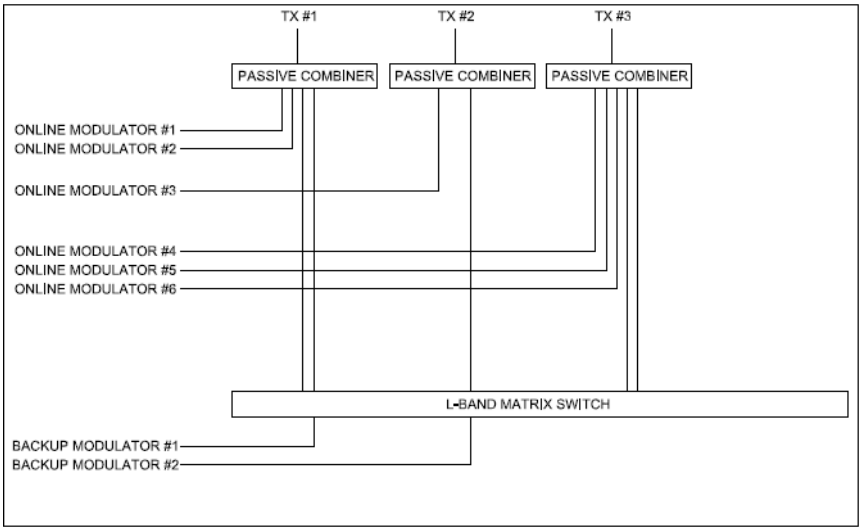


Figure 3, Uplink with 2 backups per beam

This configuration allows both backup modulators to be switched to TX#1 or TX#3.

Example 4: Downlink Redundancy

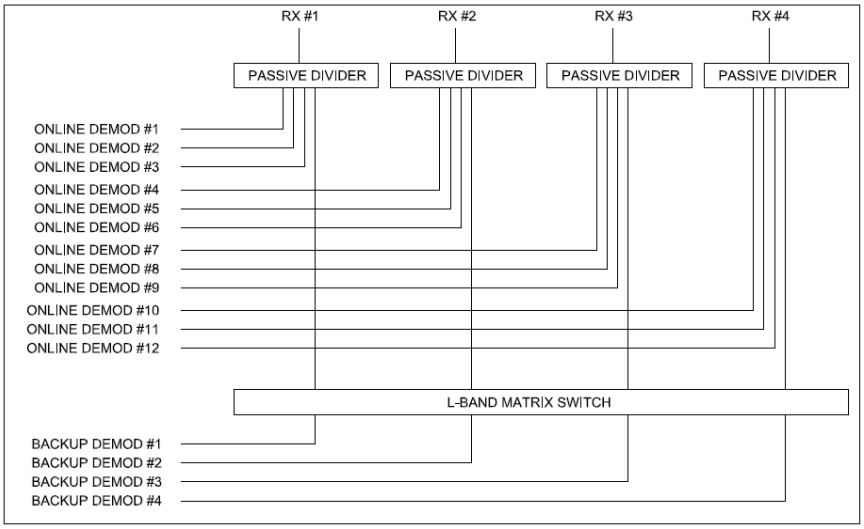


Figure 4, Downlink with 4 backups

Full fan-out capability of the matrix switch allows any backup to be switched to any of the downlinks.

Example 5: Downlink Redundancy

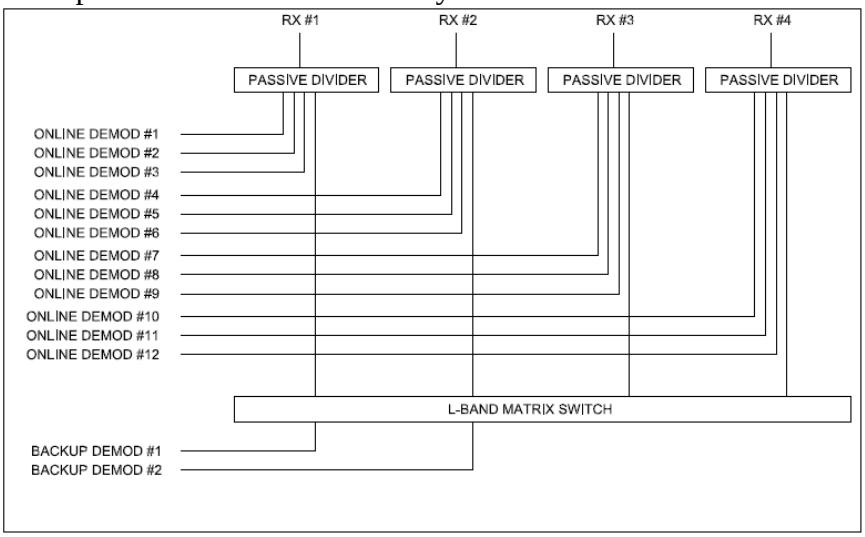


Figure 5, Downlink with 2 backups 4 beams

Full fan-out capability of the matrix switch allows any backup to be switched to any of the downlinks.

2.3 Rearming of Failed Device

Modified the current hub device redundancy function to simplify restoring a failed unit to offline/online state. The current process requires onsite personnel in order to examine the root cause of the failure to rearm as a redundant backup. The changes to modem firmware (3.3.x) and VMS software removes in most cases the need for an onsite operator to reestablish communications to a failed unit. Rearming is an autonomous operation that tries to restore operation of failed unit if possible.

3.0 Distributed VMS (Roaming)

The VMS roaming architecture was enhanced allowing either single source manager or multiple units distributed at each shore point service area. This new enhancement promotes increased reliability, no one single point of failure and reduced timing latency in HDNA.

Normally a roaming device in a single VMS architecture is identified through the site RF antenna which indicates satellite resources it is currently assigned. Each time a remote roams the antenna and its associated RF components, up converter, modulator, down converter, and demodulator are moved to a new satellite binding the frequency domain essentials on a successful roam.

In a distributed architecture along with normal roaming the remotes will leave one shore point VMS and appear in another requesting registration. The reception VMS announces to all listening VMS through a peer list that it has taken management of roaming remote. The shore point that was vacated processes cleanup of previously allocated satellite resources issuing management route updates, while bridged traffic interface relies on routing protocols, e.g. OSPF to update customer data.

NetVue recognizes that the applicable HTO's have modified their site list information through removal and addition updating capacity group list accordingly. Standard entry and dynamic switching operate normally from this point forward.

4.0 HDNA Diagnostic Switching

HDNA 3.3.1 package release supports a feature call "Diagnostic Switching" where an operator can issue a switch multi-command (similar to dSCPC) during HDNA operation. The command will stand-up the remote return carrier at commanded, MODCOD and Symbol Rate, but because the allocation of bandwidth is from the pool(s) the frequency is dynamically assigned. During the operation the carrier slot remains fixed, non-movable until command to return to HDNA.
Note on return the remotes will go back through reentry and while in the pool the fix carrier remotes take precedence over HDNA carriers.

5.0 Support, H-Plus & HRX-24 Demod

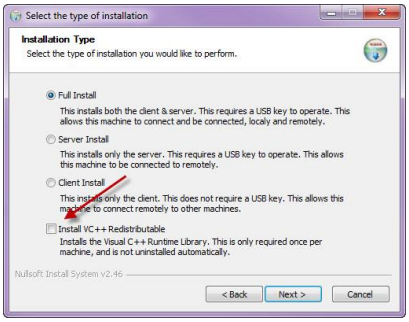
Added support for H-Plus and HRX-24 demodulator Profile.

6.0 Software Installation / Upgrade Instructions

Refer to VMS Users Guide
Vipersat Management System
User's Guide, Manual MN/22156_r16_VMS, Chapter 2 – Installing VMS

Installation Precaution

This release of 3.16.0 may require a onetime supporting library update if updating from 3.12.x or older. As part of the installation process there is an option to "Install VC ++ Redistributable" files. It is **very important** that this onetime machine (system) update is accomplished before running 3.13.2. After update any subsequent releases will not require this selection. *Note during this update the installation process will take a longer time than normal.* ***Also, if it is unknown if this update was already applied, it will not harm the system if reapplied.***



If any previous versions of AdvVSAT or Heights device driver were installed, uninstall before upgrading to new installation. If there are new additional drivers, install after VMS. Note drivers must be installed with VOS service not running.

7.0 Package Updates

This installation package includes the following component updates:

- VMS Core/Client v3.16.0.6366 (Installed Service & Client Application)
- VMS v3.16.0.6366 MIB Files
- 570/564 Parameter Editor (.dll) support v1.5.4.77 - v1.6.22.161 (HDLC WAN Framing only)
- 570AL/564AL Parameter Editor (.dll) support v1.3.1.159 - v1.5.2.170
- 5650A/NP Parameter Editor (.dll) support v1.4.0.57 - v1.11.2.152
- AdvVSAT/Heights Series Configuration Editor (.dll's) support (v1.5.2 – v1.7.1.1), (v2.1.1 – v2.5.x, v3.1.x, 3.3.1)

Note all older parameter editor versions are currently supported in this release. All above noted editors are integral to this version of VMS software, however as newer version become available they are supported as external driver install updates. Contact PSO service department for installs when available.

7.1 Supported Devices

VMS version 3.16.0 includes support the following devices:

Device	Management
CDM-570/570L	Inband/OOB
CDM-570AL	Inband/OOB
CDD-564/564L/562L	Inband
CDD-564AL/562AL	Inband
SLM-5650A w/NP	Inband/OOB
SLM-5650AD w/NP	Inband/OOB
CTOG-250/CDM-800	Managed
CDM-840	Inband
CDD-880	Inband
HTO-1/HTX-450	Managed
HRX-16/64/H-PRO	Inband
H8/16/32/64/H-PRO/H-PLUS	Inband
ROSS	Managed
CDM-600/600L	OOB
CDM-700	OOB
CDM-750	OOB
SLM-5650	OOB
CDM-625	OOB
CDM-625A	OOB
CDM-760	OOB
SENTRY3/SENTRY4 AC Power Management CDU	Managed
APC Power Management PDU	Managed

8.0 List of Fixed Problems and Modifications

The following lists problems that were corrected in this release:

These corrections within this release are based on previous build versions, 3.16.0 an older.

ENG - #1456, Reported in v3.15.1 (closed Major defect: fixed)
HRX global demodulator frequency range settings is only updated on initial unit registration
Description
The base frequency range settings for the unit is set in the database upon initial detection, and modifying during runtime will not update the initial setting. The frequency range is used in the VMS for frequency visibly mapping and if changed would potentially disrupted switching.
Correction
On frequency change internal processes are updated to reflect new base & top frequencies.

ENG - #1484, TT#13394, Reported in v3.15.1 (closed Blocker defect: fixed)
HDNA QoS group allocation assignment exceeds MIR
Description
The Channel Controller is exceeding the MIR setting within a group assignment allocating a maximum rate greater than limit set point.
Correction
Corrected the allocation calculations to properly adhere to MIR limit stop.

ENG - #1506, Reported in v3.15.1 (closed Blocker defect: fixed)
HTO 1:1 Redundancy ends up with two spares after hub power outage
Description
Redundancy failure doesn't occur if both HTOs go down at the same time during a power outage at the hub. But the problem is that they both remain as spare when the boot completes.
Correction
New Hub Resiliency Corrects this issue.

9.0 Version Compatibility

The following is the list of all fully compatible release versions:

MODEL	BASE MODEM VERSION	IP INTERFACE VERSION	TRANSEC	NOTES
NetVue		3.1.7		Northbound Manager
CDM-570/570L	1.6.19	(Ver-1) 1.6.23 (Ver-2) 2.6.23		Inband Unit Support
CDD-56x/56xL		1.6.23		Inband Unit Support
SLM-5650A	1.4.3	1.11.2	1.2.0	Inband Unit Support
CDM-570AL	1.5.2	1.5.2		Inband Unit Support
CDD-56xAL		1.5.2		Inband Unit Support
SLM-5650AD	1.4.3	1.11.2	1.2.0	Inband Unit Support
AdvVSAT Series		1.4.x – 1.7.1.1		Inband Unit Support
Heights Series		1.6.1 – 2.5.x		Inband Unit Support, HTO/HTX, HRX, H
Heights Series – HDNA		3.1.x – 3.3.1		Inband Unit Support, HTO/HTX, HRX, H
ROSS		1.5.1.1113		Managed
CDM-600	2.3.1	CiM-25, 1.0.8		OOB Unit Support
CDM-600L	1.5.7	CiM-25, 1.0.5		OOB Unit Support
CDM-700	1.3.4	GBEI, 1.10		OOB Unit Support
CDM-625	2.2.4	1.3.6		OOB Unit Support
CDM-625A	1.4.1	1.4.9		OOB Unit Support
CDM-750		1.6.0		OOB Unit Support
CDM-760		1.2.11		OOB Unit Support

Note all older versions not listed are still supported but may not operate correctly with newer features. For additional compatibility questions of versions not listed, contact your local support representative.

10.0 Known Issue(s)

Functional

Accepted Functional Known Issues –

Ticket #1393 – NetVue interface, add VMS redundancy local IP address
Description:
The interface between NetVue and VMS does not provide redundancy IP address.
Workaround:
None

Ticket #1522 – System memory leak, HDNA remotes in recovery
Description:
While operating in HDNA and remotes entering in/out switching recovery causes a leak at a rate approximately ~40KB per recovery cycle.
Workaround:
None

Ticket #1587 – Multiple reverts commands sent to remote when shutting down HS ECM
Description:
If the configuration supports two or more Entry channels and each channel is on a separate HRX unit. Disabling (power-down) the remotes HS ECM unit and reverting the remote causes the switching engine to issue multiple reverts.

With the HS ECM down, the switching engine issues revert switch command and expects to get a response. Each response failure issues another revert, up to three retries.
Workaround:
None

Note for more detailed information on issues listed above please contact your Comtech EF Data representative.