Release Notes

iDirect Velocity™
Release 1.5.x.x for RMT, PP, and HUB Components

Rev. K

December 08, 2017

✦ **iDIRECT**

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Company Web site: www.idirect.net ~ Main Phone: 703.648.8000
TAC Contact Information: Phone: 703.648.8151 ~ Email: tac@idirect.net ~ Web site: tac.idirect.net

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Company Web site: www.idirectgov.com ~ Main Phone: 703.648.8118
TAC Contact Information: Phone: 703.648.8111 ~ Email: tac@idirectgov.com ~ Web site: tac.idirectgov.com

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Revision History

The table below lists the revisions of this document. To determine whether this is the latest revision, check the TAC Web site. For accessing the TAC, see *Getting Help* on page xi.

Revision	Date	Revision Updates
A	05-May-2017	Initial release of Velocity 1.5.0.0 for RMT, PP, and HUB components
B	17-May-2017	Add additional details and update statuses for some reported known issues in this document.
C	03-Jul-2017	Include content for Velocity Release 1.5.0.1 (HLC and RMT)
D	20-Jul-2017	Include content for Velocity Release 1.5.0.1 (PP)
E	04-Aug-2017	Include content for Velocity Release 1.5.0.2 (HUB/HLC)
F	08-Sept-2017	Include content for Velocity Release 1.5.0.2 (RMT and PP) Add VELBUGS-2470 and VELBUGS-2467 as known issues in chapter *Known Issues for iDirect Velocity™ Protocol Processors* on page 21.
G	09-Oct-2017	Include content for Velocity Release 1.5.1.0 (RMT)
H	31-Oct-2017	Include content for Velocity Release 1.5.0.3 (PP)
I	13-Nov-2017	Include content for Velocity Release 1.5.1.1 (Maritime RMT)
J	17-Nov-2017	Update VELBUGS-2491 status from a known issue to a resolved issue since it was fixed in Velocity 1.5.0.2, and move it to Previous Resolved Issues for RMT appendix.
K	08-Dec-2017	Include content for Velocity Releases: • 1.5.0.4 (PP) • 1.5.1.2 (Maritime RMT)

Contents

About

Purpose

The *Release Notes* introduces a specific release of the iDirect Velocity™ software by providing a summary overview of new product features and enhancements, and a summary of hardware supported by the new release. Release Notes also describe, by component, software issues that have been resolved by this release, as well as any outstanding issues that are known to exist in this release.

Release Notes also provides a summary of important notices that should be reviewed prior to upgrading to the new release, and, if applicable, any instructions for upgrading and installing the new release software. Finally, appendices, which list software issues resolved in previous releases, may also be included.

Audience

This document is intended for use by network operators and architects that implement and work with iDirect Velocity™ networks.

Contents

This document contains the following major sections:

- *Features and Enhancements*
- *Supported Hardware*
- *Important Notices*
- *Resolved Issues*
- *Known Issues for iDirect Velocity™ Remotes*
- *Known Issues for iDirect Velocity™ Protocol Processors*
- *Known Issues for iDirect Velocity™ Hub*

Document Conventions

This section illustrates and describes the conventions used throughout this document.

Convention	Description	Example
Command	Used when the user is required to enter a command at a command line prompt or in a console.	Type the command: **cd /etc/snmp/**
Terminal Output	Used when showing resulting output from a command that was entered at a command line or on a console.	**crc report all** 8350.3235 : DATA CRC [1] 8350.3502 : DATA CRC [5818]
Screen Reference	Used when referring to text that appears on a Graphical User Interface (GUI). Used when specifying names of commands, menus, folders, tabs, dialogs, list boxes, and options.	1. To add a remote to an inroute group, right-click the Inroute Group and select **Add Remote**. The Remote dialog box has a number of user-selectable tabs across the top. The **Information** tab is visible when the dialog box opens.
Hyperlink	Used to show all hyperlink text within a document or external links such as URLs.	For instructions on adding a line card to the network tree, see *Adding a Line Card* on page 108.

NOTE: A *Note* is a statement or other notification that adds, emphasizes, or clarifies essential information of special importance or interest.

CAUTION: A *Caution* highlights an essential operating or maintenance procedure, practice, condition, or statement which, if not strictly observed, could result in damage to, or destruction of, equipment or a condition that adversely affects system operation.

WARNING: A *Warning* highlights an essential operating or maintenance procedure, practice, condition, or statement which, if not strictly observed, could result in injury, death, or long term health hazards.

Getting Help

The iDirect Technical Assistance Center (TAC) and the iDirect Government Technical Assistance Center (TAC) are available 24 hours a day and 365 days a year, to provide assistance. User guides, installation procedures, FAQs, and other documents that support iDirect and iDirect Government products are available on the respective TAC Web site:

- Access the iDirect TAC Web site at http://tac.idirect.net

- Access the iDirect Government TAC Web site at http://tac.idirectgov.com

The iDirect TAC may be contacted by telephone or email:

- Telephone: (703) 648-8151

- E-mail: tac@idirect.net

The iDirect Government TAC may be contacted by telephone or email:

- Telephone: (703) 648.8111

- Email: tac@idirectgov.com

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For sales or product purchasing information contact iDirect Corporate Sales at the following telephone number or e-mail address:

- Telephone: (703) 648-8000

- E-mail: sales@idirect.net

Document Set

The following iDirect documents are available at http://tac.idirect.net and contain information relevant to installing and using iDirect satellite network software and equipment.

- *iDirect Velocity™ Release Notes*

- *iDirect Velocity™ Network Operations Using Pulse*

- *iDirect Pulse® NMS User Guide*

- *iDirect Pulse® NMS Release Notes*

- *Terminal Web User Interface User Guide*

- *Installation, Support, and Maintenance Guide*

Features and Enhancements

This chapter provides a brief summary of the latest features and enhancements introduced in the iDirect Velocity™ software component releases. These releases include the iDirect Velocity™ software for Remotes (RMT), Protocol Processor (PP), and Hub Chassis and Line Card (HUB) components.

Also included in this section are compatibility charts for each Velocity component. Each component chart shows the software release requirements between the other Velocity components and with the iDirect Pulse® Network Management System to support compatibility.

iDirect Velocity™ Component Software Releases

Table 1-1 shows the new iDirect Velocity™ Release Software for each Velocity component.

Table 1-1. iDirect Velocity™ Component Software Releases

Velocity Component	Sub-Components	Software Release
Remotes (RMT)	X7/CX700	1.5.1.2-154 (New)
	980/CX780	1.5.0.2-23
Protocol Processor (PP)	N/A	1.5.0.4-23 (New)
HUB	Line Card	1.5.0.2-6
	Chassis Manager (Midas)	1.0.2.2-38

Component Software Compatibility

This section outlines the minimum software requirements of each Velocity component to support compatibility with other Velocity components and with iDirect Pulse® NMS.

Velocity RMT (Maritime) Release Software Compatibility

Table 1-3 shows minimum software requirements for the Velocity HUB and PP components, and for Pulse NMS, to operate with the latest Velocity Release for Remotes (Maritime).

Table 1-2. Velocity RMT (Maritime) Software Release Compatibility Chart

RMT		PP	HUB		PULSE
X7	CX700		Line Card	CM (Midas)	
1.5.1.2		1.5.0.x	1.5.0.x	1.0.2.2	2.3.0.x
					2.2.0.1

Velocity PP Release Software Compatibility

Table 1-3 shows minimum software requirements for the Velocity HUB and RMT components, and for Pulse NMS, to operate with the latest Velocity Release for PP.

Table 1-3. Velocity RMT (Maritime) Software Release Compatibility Chart

PP	HUB		PULSE	RMT			
	Line Card	CM (Midas)		X7	CX700	CX780	980
1.5.0.4	1.5.0.x	1.0.2.2	2.3.0.x	1.5.x.x			
			2.2.0.1				

Features and Enhancements Introduced in iDirect Velocity™ Release 1.5.0.2

iDirect Velocity™ Release 1.5.0.2 introduces new features and enhancements that extend the current capabilities of the Velocity network.

Bonded Modems

The Bonded Modems feature allows multiple modems to operate with a single antenna, via the ACU. Third-Party solutions such as the Xiplink box can provide a link aggregation at higher layers where two or more modems can make use of a single ACU and acquire onto the same satellite/beam. The bonded modems implementation overcomes throughput limitations, especially on the upstream.

A master/subordinate design is the basis of the bonded modems architecture. In this implementation, one modem is designated to operate in the *master mode* and controls the ACU, while all other bonded modems are designated to operate in the *subordinate mode*. If two or more modems are deployed in a bonded configuration, each must be configured to operate in either the master or the subordinate

mode. Although most bonded modem deployments will operate with two modems, there is no fixed limit as to the number of modems that may be used.

Features and Enhancements Introduced in iDirect Velocity™ Release 1.5.0.1

iDirect Velocity™ Release 1.5.0.1 introduces new features and enhancements that extend the current capabilities of the Velocity network.

Dynamic TCP Window Scaling Support

To support unexpected high WAN delay times, Velocity Release 1.5.0.1 (PP) supports the TCP Window Scale option as specified in the RFC 1323. The TCP Window Scaling is only supported for the LAN link, not the OTA link. The receive window size for each LAN TCP connection is automatically optimized by the PP to improve throughput while limiting memory usage.

Spectral Inversions for Hub Line Card and Remote (Transmit)

Starting with iDirect Velocity Release 1.5.0.1, spectral inversion is supported for both, hub line card and remote components, to allow them to operate when spectrum is inverted during up conversion (Transmit) from IF to RF domain.

Features and Enhancements Introduced in iDirect Velocity™ Release 1.5.0.0

iDirect Velocity™ Release 1.5.0.0 introduces new features and enhancements that extend the current capabilities of the Velocity network, as well as enhance some existing operations.

Table 1-4 summarizes these features and enhancements and indicates the iDirect components in which each feature is incorporated. The components include Remotes (RMT), Protocol Processors (PP), Hub Chassis and Line Cards (HUB), and the iDirect Pulse® Network Management System (PULSE).

The Velocity Release 1.5.0.0 features and enhancements are briefly described in the following table.

Table 1-4. Features/Enhancements Introduced in iDirect Velocity™ Release 1.5.0.0

Software Features	RMT	PP	HUB	PULSE
Mbps Service Support		•		•
Real Skew Support (applies to CX780 and 980 only)	•	•		
Spectral Inversion Support	•	•	•	
"Drop Oldest First" Support for Inbound	•			
Improved Support for 256 MB RAM Remote (CX700 and X7 Only)	•			
Security Enhancement — RHEL 6.9 Upgrade		•		
Security Enhancement — GLIBc Vulnerability	•		•	
OpenAMIP Enhancements	•			

Table 1-4. Features/Enhancements Introduced in iDirect Velocity™ Release 1.5.0.0

Software Features	RMT	PP	HUB	PULSE
PP Stability Improvements		•		
LNB and BUC Error Report	•			
Terminal Logging and Monitoring Support	•			

Mbps Service Support

iDirect Velocity Release 1.5.0.0 introduces a new option called "QoS Service Mode" that can be selected on Pulse NMS at the **Network** level. There are two modes available for QoS Service Mode: "IP-Based" and "Symbol-Based".

The default setting for QoS Service mode is "Symbol-Based", which supports data rates in terms of Mb/s at a nominal MODCOD (which equivalent to Symbols or MHz) and is the GBWM implementation for previous Velocity releases prior to Velocity 1.5.0.0. With the "IP-Based" QoS service mode, the Service Providers (SPs) can offer Layer-3/IP outbound (from Hub to remotes) services with CIR/MIR specified in Mbps rate based on a service region with the existing GSP based on beams. This would allow their distributors to further distribute the Mbps data rate to their end-customers (at the terminal level) in the manner they see best fit for their end-customers.

When offering services in terms of Mbps data rate, it allows the SPs to provision and manage bandwidth at the GSP/SSPC level at a real IP rate with the MIR enforcement at the GSP level. It also allows the SPs to monitor the statistics for GSP/SSPC demand, allocation, and usage at real IP rate for unicast traffic. And, ultimately, the Mbps delivery can be tied to a Service Level Agreement (SLA) with their VNOs.

The QoS Service mode can be enabled using iDirect Pulse NMS at the network level. Once selected and applied to the network, it determines the type of service the Velocity network provides on the downstream direction. This feature is supported for both unicast and multicast types of IP traffic.

Real Skew Support

In previous Velocity releases, the skew calculation done by the Hub and Terminal were based on the relative positioning of the satellite and terminal. In Velocity Release 1.5.0.0, the satellite router enhances its support for antennas to report the "Real Skew" calculation that, in addition to taking into account the relative positioning of the terminal, it also accounts for the "local tilt" caused by the variations of platform attitude (pitch and roll of an aircraft). This feature is expected to improve regulatory compliance while reducing the need to mute the terminal due to skew limits.

Currently, real skew support is restricted to the CX780 and 980 modems only.

Spectral Inversions for Hub Line Card and Remotes (Receive)

Starting with iDirect Velocity Release 1.5.0.0, spectral inversion is supported for both, hub line card and remote components to allow the these components to operate when spectrum is inverted during down conversion (Receive) from RF to IF domain.

"Drop Oldest First" Support for Inbound

NOTE: It is recommended to not use this feature until iDirect has characterized and published the best practices for queue depth configuration.

Starting with iDirect Velocity Release 1.5.0.0, RMT software will honor "Drop Oldest First" setting for *Unreliable* (non-TCP) inbound (upstream) traffic. Upstream packets that are older than the SL queue depth (in msec) will be dropped. If "Drop Oldest First" is not enabled, there will be no limit on how long upstream packets can be held in an SL queue. "Drop Oldest First" is intended mostly for use with real-time traffic, such as VoIP.

Improved Support for 256MB RAM Remotes (CX700 and X7 Only)

Stability and performance for CX700 and X7 terminals with 256MB RAM has been improved in term of:

- Optimizing run-time memory usage
- Improving reliability of SW updates

Security Enhancement — RHEL 6.9 Upgrade

Velocity Release 1.5.0.0 includes an OS update to RHEL 6.9 version for the PP servers. This OS upgrade helps to remediate the following Red Hat security vulnerabilities:

- Dirty COW (CVE-2016-5195)
- GLIBc Vulnerability (CVE-2015-7547)

Security Enhancement — Line Card and Remotes

The line card and remote software components in Velocity Release 1.5.0.0 have addressed the following:

- Dirty COW (CVE-2016-5195)
- GLIBc Vulnerability (CVE-2015-7547)

OpenAMIP Enhancements

NOTE: Please refer to Appendix B, *OpenAMIP Standard* on page 33 for the complete list of OpenAMIP Messages Types supported in Velocity 1.5.0.0.

The following OpenAMIP enhancements have been included in Velocity 1.5.0.0:

- Accepts time parameter in "`w`" as a float value.
- Supports for "`T`" message

PP Stability Improvements

The PP stability has been greatly improved in this release with the following enhancements:

- Gluster File System (GFS) and Tokyo Cabinet library has been updated to the newer stable version to incorporate patches for stability improvement provided by community

- GFS has been migrated to use Disk storage (instead of RAM storage) which allows OS to manage the memory and caching of files

- Removed use of DNS to address slow/stalled FGS storage population

- Improved Channel Manager's iNet option generations, notification and writes to improve PP_SYNC_OPT stability

LNB and BUC Error Report

In Velocity Release 1.5.0.0, the BUC and LNB errors are now reported by the satellite router through the Terminal Web UI and the Remote Web Services API upon request.

Terminal Monitoring and Logging Support

As part of the Velocity Release 1.5.0.0, a terminal monitoring and logging script is included in the RMT software package. To enable the logging script, add the following EDK to the falcon.json file:

```
"DEBUG":
```

```
{ "enable": 1 }
```

Where,

> **1** is used to enable the logging script and

> **0** is used to disable the logging script.

As soon as falcon is restarted, the terminal monitoring scripts (rmt_mon.sh, con_collect.sh, and log_collect.sh) will be started; however, they will start collecting logs only if the above EDK is presented in falcon.json file. The log files are located in the /common/mon_logs folder. The following logs are to be collected:

- /var/log/messages

- stack dump

- console command log output

The log files will be rollover once it reaches its limit. New files will be created and backed up based on the limits (hard-coded) below:

```
VAR_LOG_LIMIT=25
```

```
CONSOLE_LOG_LIMIT=5
```

```
STACK_LIMIT=5
```

Supported Hardware

This chapter, which contains the following sections, outlines the hardware supported by iDirect Velocity™ 1.5.

- *Supported Satellite Routers*
- *iDirect Supported Hub Hardware*

Supported Satellite Routers

The following iDirect Satellite Routers are supported in the iDirect Velocity™ Release 1.5:

- X7 Satellite Routers
- 980 Satellite Router
- CX700 Satellite Router
- CX780 Satellite Router

iDirect Supported Hub Hardware

The items listed in Table 2-1 represent iDirect hardware supported in iDirect Velocity 1.5.

Table 2-1. iDirect Velocity™ Hardware — Field Replaceable Units

FRU	iDirect Part No.	Supplier	Manufacturer	Model
iDirect 15152 Hub Chassis	K0000084-0004	iDirect	iDirect	15152 Hub Chassis
RCM-PPS	K0000114-0003	iDirect	iDirect	RCM-PPS
ULC-R Line Card	K0000118-0004	iDirect	iDirect	ULC-R
ULC-T Line Card	K0000117-0004	iDirect	iDirect	ULC-T
Protocol Processor	E0002829-1000	iDirect	Dell®	PowerEdge™ R630

Important Notices

This chapter presents information of which users should be aware prior to working with iDirect Velocity™ Release 1.5.0.0. These notices may include items such as specific feature limitations, configuration parameter requirements or constraints, or items that specifically affect the software upgrade.

CVE-2013-5211 Security Risk

In accordance to Red Hat CVE-2013-5211 announcement, iDirect is aware of this security risk and actively working to remediate affected products.

CVE-2016-0800 Security Risk

In accordance to OpenSSL CVE-2016-0800 announcement, iDirect is aware of this security risk and actively working to remediate affected products.

Network Component and Software Hardening Disclaimer

Network component and software hardening is ultimately the responsibility of the satellite services provider. It is the user's responsibility to ensure that any network configuration complies with the regulatory requirements of their countries. iDirect does not accept any liability for direct or indirect injury or damage caused by the use of information found in this document. iDirect hereby disclaims all liabilities that may result from this document.

PP Node Re-balance Constraints

With the current design, after a software upgrade, the Cluster Resource Manager does not automatically assign workload to PP nodes (automatic rebalance). If there is an uneven distribution of processes across all PP nodes, iDirect recommends customers to perform a manual re-balance during a maintenance window. Note that, this action will affect services throughout the network.

Reserved SVN IDs 1 and 4095

SVN IDs 1and 4095 are reserved and not usable for customer data LAN. Attempting to use these reserved SVN IDs may result in traffic disruptions and network outages.

Required NMS_SSPP Configuration

The following table provides the default NMS SSPP Service Level (SL) configurations required to avoid any conflicts with the control traffic priority.

SL	Type	Drop Oldest	Trigger Wakeup	Optimization	Scheduling	Priority	Queue Depth	SL Precedence	Classifier Rules
NMS_ICMP Down	Unreliable	**No**	No	Min Latency	Priority	15	250	2	SVN, ICMP
NMS_ICMP Up	Unreliable	**No**	No	Min Latency	Priority	15	250	1	SVN, ICMP
NMS TCP Down	Reliable	**No**	Yes	Max Channel Eff	Priority	16	20	4	SVN, TCP
NMS TCP Up	Reliable	**No**	Yes	Max Channel Eff	Priority	16	20	3	SVN, TCP
NMS UDP Down	Unreliable	**No**	No	Max Channel Eff	Priority	16	250	6	SVN, UDP
NMS UDP Up	Unreliable	**No**	No	Max Channel Eff	Priority	16	250	5	SVN, UDP

> *NOTE:* For all SLs in NMS SSPP, the following additional parameters must be configured accordingly:
>
> **Reduce Jitter**: No
>
> **Spoof**: No
>
> **Web Acceleration**: No
>
> **Service Marking**: None

Service Level Configuration

The "Drop Oldest First" option must be unchecked (configured as "No"), until iDirect has characterized and publicized the best practices for the queue depth configuration.

SSPP Filter Configuration

To create more than one filter for SSPP configurations, please check the "**Precedence Enable**" field in "**Protocol**" group and configure a unique "**Traffic Rule Precedence**" value.

Configuring QoS Service Mode Without GBWM Server

In case where a network does not have a dedicated GBWM server at the NOC, the following custom key can be added to the PP_GLOBAL_OPT options file to configure the QoS Service mode:

```
{
    "GQE":
    { "qos_service_mode": 0 }
}
```

Where,

> **0** represents the service mode in Symbol-based and,

> **1** represents the service mode in IP-based.

Renaming of Antenna Control Process

Starting in Velocity Release 1.5.0.0, the Antenna Control Process on the remote has been renamed from *ant_ctrl* to *antenna_ctrl* in the remote software component.

From the Linux prompt on a remote console, one can telnet directly to *antenna_ctrl* process using the command "**telnet 0 10023**".

For example,

```
# telnet 0 10023
Entering character mode
Escape character is '^]'.
Username: admin
Password: ********
[14:44:02:844839]
[antenna_ctrl(1)] admin@telnet:127.0.0.1;42744
>
```

An alternate method of logging into the antenna_crtl process is telneting to falcon using the command "**telnet 0**", then switch to the antenna_crtl process.

For example,

```
# telnet 0
Entering character mode
Escape character is '^]'.
Username: admin
Password: ********
> antenna_ctrl;
[antenna_ctrl(1) admin@internal
```

To return to falcon console:

```
>x;
```

GlusterFS Version 3.7.5 Update for PP

Starting in Velocity Release 1.4.0.3, the PP software has been updated to the Redhat supported version 3.7.5 of the GlusterFS. This GlusterFS version includes multiple new features and bug fixes which minimize issues with accessing the cloud.

In previous releases, there were some instances when a PP process was unable to push data to the cloud while the cloud was unresponsive causing it to crash. As a result, issues with pushing options files from the NMS were observed. In other instances, the cloud was in the process of replicating data and did not allow the PP processes to read any options files, which caused the local resource manager to restart these processes. As a result, service interruption for some terminals were observed.

The following issues (both internal and external reported issues) may have been fixed with the GlusterFS update:

- VELBUGS-154
- VELBUGS-296
- VELBUGS-435
- VELBUGS-438
- VELBUGS-474
- VELBUGS-552
- VELBUGS-888
- VELBUGS-1116
- VELBUGS-1497
- VELBUGS-1519
- VELBUGS-1870
- VELBUGS-1931

BGP Restriction on Admin VLAN

It is recommended that on the Admin VLAN, BGP peer should only be configured on the Hub side LAN peer only (from PP to upstream router); however, it should be disabled on the OTA peer and the terminal side LAN peer. Enabling BGP on either the OTA peer and the terminal side LAN peer will cause the terminal to not able to communicate with the ACU and potentially becomes unstable.

Internal Switch Behavior on Terminals

Below are clarifications on some of the internal switch behaviors related to Admin VLAN for terminals:

- Admin VLAN (VLAN1) is always available on switch port 1 whether or not admin VLAN is configured on port 1.

- Admin VLAN traffic is untagged by default.

- Admin VLAN traffic on any ports can only be tagged in the presence of an EDK **"admin_vlan_tag_enable"** under **SWITCH PORT** group in lan_config.json file (as shown below).

```
"SWITCH_PORT": [

  {

   "vlan_list": "1,1701,1702",

   "port_number": 1,

   "tag_enable": 1,

   "admin_vlan_tag_enable": 1

  }

]
```

Resolved Issues

This chapter describes, by component, the software issues that have been resolved in iDirect Velocity™ Release 1.5.x.x for RMT, PP, and Hub components.

Issues Resolved in iDirect Velocity™ 1.5.1.2 for RMT (Maritime)

VELO-7507: Remote WebServices API Fails After Terminal Options Update

It has been observed that after a terminal options update, the terminal WebServices API randomly fails. This issue does not affect the terminal since it continues to pass traffic.

Issues Resolved in iDirect Velocity™ 1.5.0.4 for PP

VELBUGS-2709: PP_TPA/DA Using Wrong Tx Gain Value to Calculate Invitation Report on a Beam Switch

It has been observed that PP_DA uses the current uplink state for Tx gain parameter, instead of the target beam Tx gain value, to validate potential carriers to invite the terminals. If a customer has lower Tx gain values to prevent ASI at edge of beam regions, this will cause the beam switch to fail since there are no viable carriers present in the invitation report.

VELO-6954: PP_TPA Process Crashes Due to Memory Corruptions

In certain cases of SSPC options loading when terminal acquires/reacquires, memory corruption occurs, leading PP_TPA process to crash.

VELO-6921: PP_NA Process Terminates When Changing GSP From Global to Regional

It has been observed that, when modifying a GSP configuration from "global" to "regional", it causes the PP_NA process to terminates and unable to recover. This issue causes the iNet service to suffer as no traffic can be passed.

Known Issues for iDirect Velocity™ Remotes

This chapter describes the software issues that may be encountered in iDirect Velocity™ Release 1.5.x.x for Remotes (RMT).

Known Issues in iDirect Velocity™ 1.5.x.x for RMT

VELBUGS-2696: GRE TCP Sessions Randomly Get Stalled Under Heavy Traffic

When under heavy traffic for an extended period of time, the GRE TCP sessions would randomly get stalled and unable to recover.

Work-around: None.

VELBUGS-2046: Remote Web Service Queries /terminal/ip/vlan/eth/<ID> and /terminal/ip/vlan/dhcp/<ID> Do Not Work

The following remote Web service queries do not work:

- /terminal/ip/vlan/eth/<ID>

- /terminal/ip/vlan/dhcp/<ID>

Work-around: Do not specify any <ID> when performing the above queries. The queries will return all available IDs.

VELBUGS-1890: DHCP Mode Not Updated in Terminal GUI

It has been observed that, after configuring DHCP server mode for one of the terminal SVN, the new DHCP configuration does not get updated in the terminal GUI.

Work-around: None.

VELBUGS-1727: Terminal Stops Passing Traffic After Running Continuously For Several Days

After running non-stop traffic for multiple days, the terminal stops passing traffic due to no buffer is available in the Rx pool.

Work-around: None. However, in Velocity Release 1.5.0.0, a script was added as a temporary solution to this issue. The script will detect the issue when it occurs and automatically restart the falcon.

VELBUGS-1626: Terminal Spoofer Randomly Retains Stale/Invalid Sessions

It has been observed that the terminal spoofer layer randomly retains stale/invalid sessions while its maximum limit is only 4000.

Work-around: None. However, in Velocity Release 1.5.0.0, a script was added as a temporary solution to this issue. The script will detect the issue when it occurs and automatically restart the falcon.

VELBUGS-1209: Remote Randomly Unable to Switch Beam on First Attempt When a Channel is Brought Down and Brought Back Up

This issue could cause some remotes to not able to use the most optimal beam for a few seconds until subsequent beam attempt is successful.

Work-around: None.

VELBUGS-1115: Spoofer Not Resetting OTA Retransmission Timeout

Under heavy traffic load, the terminal spoofer fails to reset the OTA retransmission timeout properly. It instead doubles the retransmission timeout for every retransmission episode with a total timeout value of 140 seconds.

Work-around: None.

VELBUGS-746: Spoofer Confused by Invalid Zero MSS From Peer

It was observed that, on some occasions, the LAN-side TCP peer would send an invalid TCP MSS option with a value of zero. The terminal spoofer, in turn, would accept this invalid MSS value and use it as its own MSS. This issue could cause the spoofed connections to fail.

Work-around: None.

VELBUGS-707/706: Terminal Stays Out of Network After Multiple Rx Disconnect/Reconnect Tests

Occasionally, when the remote RF cable is disconnected for a short time and the terminal drops out of network, on re-connecting the receive RF cable the remote stays out of network.

Work-around: Restart the Falcon.

VELBUGS-633/GXTAC-249 (ISS-00115948): Terminal Source MAC Address Not Advertised During Multicast

The remote source MAC address is not advertised during multicast. The product functions; however, there are small errors or rare occurrences of specific issues.

Work-around: None.

VELBUGS-563: Remote Drops Traffic During ATDMA Nominal Carrier Change

It was observed that when there was a nominal carrier change, a remote would drop traffic on the upstream. The cause of the traffic loss is because two carriers, old and new nominal carriers, have a very close operating thresholds. The algorithm selecting the nominal carrier has a problem and switches often. In a use case where there is no fade and the separation of C/No is greater than 0.5dB (carriers selected for IGC2), this issue will not happen.

Work-around: Configure carriers in the inroute group to be farther apart in margins so that nominal carrier changes do not happen frequently. Also, consider changing the margins and thresholds for changes among carriers to ease the frequency of changes.

VELBUGS-415: Cannot Dynamically Enable/Disable Terminal Link Encryption

Enabling or disabling link encryption at the terminal requires restarting the falcon for changes to take affect.

Work-around: Restart the falcon for the changes to take affect.

VELBUGS-367: HTTP Redirect Feature Fails to Redirect to Destination URL

At the Fair Access Policy window, selecting Enable HTTP Redirect to redirect requests to a destination URL address works until the SSPP FAP allowance is depleted by the remote. When the SSPP FAP allowance is depleted, a user is no longer redirected to the destination URL. As a result, a user is not redirected to an access page where Overage can be approved and bought.

Work-around: None.

VELBUGS-271: Missed Bursts Observed Intermittently on Different Carriers

In a rare occurrence, missed bursts from the satellite terminal have been observed with different carrier configurations. The missed bursts count matches the missed keep-alive count under the BTP stats.

Work-around: None.

VELBUGS-265: Remote Forwards Multicast Data Traffic to User Port, When Group Removed From IGMP Membership

It was observed that even after the remote removes the IGMP group from the IGMP membership table, the multicast data traffic for that group is still forwarded to users.

Work-around: None.

VELBUGS-36: Traffic Drops/Unsupported Message Types Seen When Link Encryption Is Enabled on Some Beams

In a network configured with Link Encryption enabled, it was observed that for certain beams there was significant upstream traffic drops. In addition to this issue of dropped traffic, logged error reports showed error messages for the upstream on pp_tpa with unsupported message types.

Work-around: Disable Link Encryption to avoid loss of data.

Known Issues for iDirect Velocity™ Protocol Processors

This chapter describes the software issues that may be encountered in iDirect Velocity™ Release 1.5.0.x for Protocol Processors.

Known Issues in iDirect Velocity™ 1.5.0.x for PP

GXTAC-591(ISS-00126953): De-Pointing Antenna Causes Outage In RDS Mode

It was observed that after performing a force RDS and eventually de-pointing the primary antenna, an outage occurs and all remotes fall out of network.

Work-around: None.

GXTAC-363 (ISS-00121122): Node Rebalance of PP Cluster Does Not Occur When a Node Fails or is Added

When a node returns to a PP cluster after a failure, existing PP processes do not re-balance automatically. In order to rebalance the PP processes, manual intervention with PP cluster restart or "node rebalance" on DC node console is necessary. This is affecting service because after the manual intervention, the terminal falls out and reacquires.

Work-around: Manually restart cluster or issue "`node rebalance`" on DC node.

GXTAC-217 (ISS-00116375): TCPDump and Dependent Libraries Reside In All PP Servers By Default

To avoid having to install the binaries manually, TCPDump and dependent libraries should be present in all PP servers by default.

Work-around: None

GXTAC-53: No Alarm/Event Generated for CMS Communication Failure

After making management routing changes, connectivity with the Carrier Measurement System (CMS) was lost at the SAS and diversity SAS and the NMS did not generate any alarms/events.

Work-around: None

VELBUGS-2517: Spoofer Does Not Advertise Window Scaling for Upstream TCP Traffic

Spoofer does not advertise window scaling when establishing HTTP sessions for upstream TCP traffic. The window size uses by spoofer is always at 65K, while the receiving device on the hub side can handle more than 65K.

Work-around: None

VELBUGS-2489: QoS Classification Uses Inner IP Header for Traffic in Configured GRE Tunnels

The existing GRE implementation in previous Velocity release 1.5.0.0 strips out the outer IP and GRE headers in order to save OTA bandwidth. As a result, the QoS classification occurs after the header compression has access to the inner IP header only.

Work-around: Configure the QoS rules using only the inner IP header information.

VELBUGS-2470: GSP Level Stats Reports Distributed Bytes Greater Than Demand Bytes for Downstream

When the network is in the IP-based mode, the GSP level stats for GSP distributed bandwidth is incorrectly reported higher than the demand bytes for downstream traffic.

Work-around: None

VELBUGS-2467: GSP Level Stats Reports Distributed Bytes Greater Than Demand Bytes for Upstream

When the network is in the IP-based mode, the GSP level stats for GSP distributed bandwidth is incorrectly reported higher than the demand bytes for upstream traffic.

Work-around: None

VELBUGS-2366: Multicast GSP Downstream CIR Incorrectly Reports As Zero

It has been observed that the downstream CIR for Multicast GSP is incorrectly reported as 0 in the GQE. This issue causes the statistics related to the downstream CIR currently in effect for the group (in symbols) to be unreliable.

Work-around: None

VELBUGS-2284: GSP Total Throughput For Upstream Is Less Than Allocated Slot Due to SSPC Contention

Under a specific condition where there are two child nodes (SSPCs), each belongs to a different remote, are contended for the MIR configured for the upstream, the slot allocation is correct; however, the total throughput is much less than expected. This issue, however, does not occur in a network with a large number of remotes/SSPCs.

Work-around: None

VELBUGS-2235: Unmet SSPC Downstream MIR Demand Continues to be Added to Subsequent Demand

It has been observed that, when the system is unable to fulfill the SSPC Downstream MIR demand, it adds the unmet demand value to the subsequent demand, causing the SSPC Downstream MIR demand to be much higher than the actual demand.

Work-around: None

VELBUGS-2214: PP_DA Unable to Allocate Demand Even When Channel BW is Available

It has been observed that, under certain conditions (terminal types/constraints and inroute constraints) prevent the PP_DA to satisfy terminal demand even when channel BW is available.

Work-around: None

VELBUGS-2182: Zero CIR Configuration for GSP Does Not Work

It has been observed that configuring the GSP CIR as zero would cause the GQE error message to be reported on the Pulse NMS.

Work-around: Configure the GSP CIR as 0.000001 instead.

VELBUGS-2128: Unable to Clear ULC-T RxOverflow Warning Message After a Real-Time Overflow Event

The RxOverflow warning message is shown as an alarm on the NMS. This warning message cannot be cleared after a real-time overflow event because the reported count is not zero.

Work-around: None.

VELBUGS-1992: FAP Consumption Gets Affected for Disabled Regions If FAP Is Disabled For Some Regions And Enabled For Some Other Regions

In a scenario where the GSP has presence in multiple regions, the QoS Geoscope will be a super set of the FAP Geoscope. Both of these sets are not expected to be the same. However, if the FAP Geoscope is a subset of the QoS Geoscope, some of the regions would have FAP disabled while some others would have FAP enabled.

Since GSP FAP is enforced at the NOC level, based on the FAP consumption in regions where FAP is enabled, the regions where FAP is disabled will also be penalized.

Work-Around: None.

VELBUGS-1973: GSP's CIR/MIR Will Be Throttled If Initial Volume is Less Than the Specified Volume for Throttling Rule

In instances where the GSP initial/remaining volume is less than the configured throttle volume, it will cause the GSP to throttle its CIR/MIR.

Work-Around: None.

VELBUGS-1934: GSP Node Established in the GQoS Running Tree Even When Its Geoscope Does Not Cover That SAS or Beams

It has been observed that the GSP node is established in every SAS and beam even when its geoscope does not have any coverage there. This issue could potentially cause scalability issue and affect the network operation.

Work-around: None

VELBUGS-1922: GQE Randomly Gets Out-of-Sync After Restart or Upgrade

It has been observed that the GQE randomly gets into the wrong state after a NOC/SAS failover, a PP upgrade, or restarting one of the PP node.

Work-around: Restart all PPs right after a NOC/SAS failover or a PP upgrade.

VELBUGS-1719: Some Chassis Slots Get Disabled After a Power Failure on Chassis

When the chassis loses power, the line cards shut off and the LCC declares the line cards have failed. The LCC sends commands to the CHM to disable the failed slots and the CHM forwards these commands to the chassis but does not succeed, since the chassis is powered off. Depending on the duration of the chassis being powered off, some or all of the commands may expire. After the chassis is restarted, it may still receive the commands to disable the previously failed slots.

Work-around: None.

VELBUGS-1640: CRC Errors Observed For Carriers With Low Symbols Rates and High MODCODs on the Inbound

Frequent CRC errors have been observed in a network which configured with a combination of low symbol rates and MODCODs greater than QPSK 2/3.

Work-around: None.

VELBUGS-1637: UDP Header Compression Fails When NAT is Enabled

Per current design, UDP header compression does not work when NAT is enabled for a particular SVN.

Work-around: None.

VELBUGS-1602: Recurrence CIR/MIR Continue to be Honored Even After Recurrence Time Has Expired

It has been observed that the Recurrence CIR/MIR configured on a terminal is continued to be honored even after the recurrence time has already expired.

Work-around: None.

VELBUGS-1588: PP Fails to Report GSP Expired Events

It has been observed that the PP fails to report GSP Expired events to the NMS. This issue resulted in customer not knowing why both IB and OB traffic get stopped after the GSP service has expired.

Work-around: None.

VELBUGS-1526: Directory Service Address Changes Require A Restart to Take Effect

Changes to the Directory Service virtual IP and multicast addresses require a PP cluster restart to properly take effect.

Work-around: None.

VELBUGS-1403: PP Server Crashes Due to CPU Hard Lockup

It has been observed that the PP Server could potentially crash due to a CPU hard lockup because one of the CPUs not able to schedule interrupts for over 10 seconds.

Work-around: None.

VELBUGS-1367: Beam Switch to iNet With Access Class 0 is Possible

It has been observed that beam switch to an iNet with Access Class of 0 is possible when it should not be allowed.

Work-around: None.

VELBUGS-1331: Offered Service Fails to Appear in Service Pool

It was observed that when a service is offered and subsequently discontinued — if the service is again offered with an updated option immediately following the service discontinue, then the service fails to activate.

Work-around: None.

VELBUGS-739: EIRP Statistic Not Sent From PP Server

It has been determined that the EIRP statistic, which measures the power of a transmitted carrier and is reported at the iNet level, is not forwarded from the PP server.

Work-around: None.

VELBUGS-738: Cluster Stop/Restart Cause VIP Relocation/Cluster Instability

In earlier Velocity releases, a node failure or cluster stop/restart causes virtual IP addresses to be relocated to different machines, which thereby cause the IPsec mesh to change. Due to these changes the IPsec resource is declared corrupted and the cluster becomes unstable.

Work-around: None.

VELBUGS-737: IPSec Script Reports IPsec Resource Not Running if Connection Not Added

The IPSec script reports that the IPsec resource is not running if connection is not added due to an empty file as a result of disk filled. As a result, the resource agent is stopped and restarted and resources on that node repeatedly stops/starts, thereby affecting network stability and traffic.

Work-around: None.

VELBUGS-728: Immediate Resources Not Reloaded When Cluster Operational Mode Changes

It was determined that on a cluster failover that the immediate resources are not reloaded and instead the resources of the backup are used. Due to this issue the resource used does not match what is passed to the ipsec_vip.

This issue may result in a memory leak on any node that is assigned a VIP and it is not in the IPsec mesh.

Work-around: None.

VELBUGS-697: Configured MIR for Multicast Traffic Fails to Serve Actual Remote Throughput

It has been observed that the expected Outbound multicast throughput rate is not achievable, given a specific configured MIR for multicast traffic (MSSPP).

Work-around: Configure a higher MIR for Multicast GSP.

VELBUGS-687: Loading of Options and Return to Operation Requires Longer Time After PP Process (PP_RT) Failure

When the PP process pp_rt fails, the process requires a significant amount of time to reload the BGP table and return to operation. This delay has been observed in a lab network and is approximately around 5 to 6 minutes. Network traffic could be impacted during that duration.

Work-around: None.

VELBUGS-678: IPSec Incorrectly Reports "UpRunning" on Bare Metal Install

By design, to speed up startup times, the script reports UpRunning when no tunnels are configured in IPSec. UpRunning is also reported on nodes in which the IPSec configuration file directory is not yet created —which cause subsequent errors with the ipsec_vip resources.

Work-around: None.

VELBUGS-634: MapConverter Unable to Handle Service Areas with Longitude Greater than 180 Degrees

When reading the service area with longitude greater than 180 degrees, MapConverter incorrectly handles the service area and stretches it across the map overwriting other valid service areas.

Work-around: Define the service area longitudes between -180 and 180. In addition, do not cross them over the -180 and 180 line.

VELBUGS-524: Unable to View PP Server Status for Real-time Operation

After selecting **Status View** under **System Monitoring** and selecting either line cards or PP servers, status is not available for the requested elements.

Work-around: None.

VELBUGS-316: Service Recurrence Resets FAP Throttled CIR/MIR

It was determined that when both Service Recurrence and FAP Recurrence were enabled, upon reaching the Service recurrence the FAP throttled CIR/MIR were reset. Impact: As a result of this issue, the FAP will not function properly if both service recurrence and FAP recurrence are enabled.

Work-around: None.

VELBUGS-314: The Metric "congested_net_cnt" Not Reported by PP to NMS

The metric "congested_net_cnt" is not being reported by the PP to the NMS and as a result it is not being displayed on NMS-WUI.

Impact: This issue affects the "congested_net_cnt" stats reported from PP to NMS. The data path is not affected.

Work-around: None

VELBUGS-313: Killing pp_mc Process Causes Downstream Multicast Traffic Loss

Killing the process (pp_mc), which handles the downstream multicast traffic for the dynamic IGMPv3 groups learned causes downstream loss of approximately 17 secs. The process re-initialization should be seamless and the traffic drop should be less than 5 secs.

Work-around: None

VELBUGS-310: Node IPsec Occasionally Fails to Start

In previous releases, the IPsec process would fail to start after upgrading the PCS software. As a result of this issue the cluster nodes are unable to join the cluster.

Work-around: Restart the non-working cluster.

VELBUGS-309: Congestion Weight Value Does Not Affect Congestion Control

When congestion weight parameter is set to 1, it does not have any desired effect on congestion control metric, such as congestion based purely on CIR.

Work-around: None.

VELBUGS-307: PP Process (pp_da) Fails to Allocate Bandwidth for Remote Upstream Traffic when SSPC Remote Options has Invalid End Date

PP_DA doesn't allocate slots to the remote demanding the bandwidth when the remote upstream service plan component has an invalid/error date. This issue only occurs when the SSPC is configured with invalid dates.

Work-around: Ensure that valid dates are configured.

VELBUGS-295: GSP Aggregate Stats Over an iNet are Reported Against Wrong Element ID

The stats listed below are all produced by aggregating over all GSPs in an iNet. They should all be reported against the iNet. However, these stats are reported against the <GSP, iNet> composite.

- agg_group_us_active_contention_ratio

- agg_group_us_total_configured_cir

- agg_group_ds_active_contention_ratio

- agg_group_ds_total_configured_cir

Work-around: None

VELBUGS-288: Top-Up and Overage Does Not Return Suspended CIR/MIR to Original Values

After the FAP volume allowance is depleted and a service enters the suspended state, a Top-allowance configured at the NMS GUI is reflected on the NOC Global QOS Enforcer (GQE) process. The state changes from suspend to Top-Up; however, the CIR/MIR does not return to the original values.

Work-around: None.

VELBUGS-247: OTA Peer Configuration Not Deleted From PP_RT Even After Disabling BGP

After disabling BGP, the OTA peer configuration still remains in the pp_rt. This can cause issues when trying to re-enable BGP, since the pp_rt still maintain the old OTA peer configuration.

Work-around: Manually terminate the pp_rt process.

VELBUGS-149: PP Server Nodes Continuously Switch Between Operational Modes

The PP server nodes as part of the PP cluster are continuously switching the node status between active/standby/failed mode. This is caused by a corner case, after the PP server IP address was changed. The update manager repetitively take the node into standby mode in order to perform a software update.

Work-around: EDB software is available and must be used as part of this workaround.

After upgrade is completed, perform the following:

1. Install the inuc EDB

2. Clear LRM state file (/var/run/idirect/lrm_state)

3. Restart inuc

4. Restart cluster

5. Set IPSec resource check time to 10000 by update the following parameter from the PP.res file located in the /usr/share/idirect/cluster/resources directory:

   `"status_timout_ms": 10000,`

6. Set Heart-beat time to (1000ms from node, 2000 from DC – Cluster Config EDK) - section [CEM]

   `"heartbeat_period_dc_ms" : 2000,`

   `"heartbeat_period_ms" : 1000,`

Known Issues for iDirect Velocity™ Hub

This chapter describes the software issues that may be encountered in iDirect Velocity™ Release 1.5.0.0 for Hub Chassis and Line Cards.

Known Issues in iDirect Velocity™ 1.5.0.0 for HUB

VELBUGS-2207: HLC Loses Heartbeat Under High Traffic Volume (Above 200 Mbps)

When under a heavy traffic volume, above 200 Mbps of iMIX traffic, the Tx line card could potential lose its heartbeat, which ultimately causes the remotes to temporarily drop out of network.

Work-around: None.

Appendix A Previously Introduced Features

This appendix is a compressed list of all features previously introduced in earlier Velocity Releases. For the complete feature descriptions, please review the Release Notes document for the specific Velocity software where the feature was first introduced.

Release	Feature Titles
1.4.0.0	Token Based Authentication
	Reduced Roll-Off Options
	Satellite Acquisition Preference
	Independent Service Area - Multicast Support
	Optimized Beam Switch
	Enhanced Fast Signal Strength Reporting Support
	Satellite/Beam Switch API Enhancement
	Hybrid Skew Margin Support (applies to CX780 and 980 modems only)
	AIM/BIM IP Address Configurability
	Terminal External ICDs Compatibility
1.3.0.0	Independent Service Area
	Group Service Plan MODCOD Scaling
	Break-Before-Make Beam Switch Optimization
1.2.0.0	Acquisition Signaling Carrier
	Terminal VLAN ID Mapping
	Non-Circular Beam Support
	Ku-Band Satellite Support
	Linear Polarization Support
	Multiple Satellites Per Chassis
	Multi-Band LNB Support
	Fixed Terminal Mode Support
	Fast Signal Strength Reporting (RSSI)

Appendix B OpenAMIP Standard

Velocity Release 1.5 is backward compliant with the *mandatory* fields in OpenAMIP 1.6 through 1.11. For detailed information, see the OpenAMIP Standard document.

The following are applied only for OpenAMIP 1.12:

- The RSSI reporting in the "C" message was modified/improved based on customer's feedback regarding this feature in Velocity 1.3. In the "C" message, all fields are, therefore, not compatible with OpenAMIP 1.11 — specifically, receive lock state enumeration and was changed from 'wideband signal strength' to 'receive composite power.'

- The mandatory incrementing time stamp in the "w" message was removed to ensure backward compatibility to OpenAMIP 1.6 through 1.11. Clarification of time stamp reporting was also updated in this version.

- The skew angle parameter to "w" message was added.

Table B-1. OpenAMIP Message Types

Type	Parameter Name	Velocity 1.5 Support
A	Keepalive Interval	Yes
B	Rx LO freq	Yes
	TX LO freq	Yes
C	CNR (SNR) — headers/pilots	Yes
	CNR (SNR) — data	Yes
	Time	Yes
	Received carrier lock state	Yes
	Composite power	Yes
E	Max power	No
F		Yes
H	Frequency	Yes
	Bandwidth	Yes

Type	Parameter Name	Velocity 1.5 Support
I	Modem manufacturer	No
	Modem model	No
K	Max skew	Yes — AERO Only
	Min skew	Yes — AERO Only
L	Rx lock state	Yes
	Tx Enable	Yes
N		Yes
P	Rx Pol	Yes
	Tx Pol	Yes
S	Longitude	Yes
	Latitude	Yes
	Polarization skew	
T	Tx freq	Yes
W	Repeat interval — INT	Yes
X	String	No
a	Keepalive repeat interval	Yes
c	-AZ	0
	+EL	0
	+AZ	0
	-EL	0
	Reporting rate	Yes
i	Manufacturer	No
	Model	No
r	Reference freq	No
	Reference	No
s	Antenna functional	Yes
	Modem may transmit	Yes
	Search count	Yes
	Tx disabled	No

Type	Parameter Name	Velocity 1.5 Support
w	Location valid	Yes
	Latitude	Yes
	Longitude	Yes
	Altitude	Yes
	Time	Yes
	Heading	Yes
	GPS compute speed	Yes
	Pitch angle	Yes
	Roll angle	Yes
	Yaw angle	Yes
	Skew angle	Yes
Ident	Terminal Identifier	Yes (optional)

Appendix C Previous Resolved Issues for Velocity RMT

This appendix provides a compressed list of all issues previously resolved for Velocity RMT.

Issues ID	Short Description	Fixed In
VELBUGS-2716	Admin VLAN Should Accept Untagged Traffic	1.5.1.1 (Maritime)
VELBUGS-2714	Remote Unable to update Due to Remnants of Previously Completed Update Manager Action Plans	1.5.1.1 (Maritime)
VEL BUGS-2695	Incorrect RSSI SNR Reporting During Commissioning	1.5.1.1 (Maritime)
VELBUGS-2691	Terminal Configured Cannot Acquire into the Network Using a Spread Carrier	1.5.1.1 (Maritime)
VELBUGS-2690	Terminal Randomly Generates Duplicate Hash Values in Inventory Preventing Further OTA Updates	1.5.1.1 (Maritime)
VELBUGS-2656	Terminal Spoofer Incorrectly Updating OTA Tx Queue Size	1.5.1.0
VELBUGS-2636	BUC Short Error Prevents Completion of X7/CX700 Commissioning Process	1.5.1.0
VELBUGS-2620	RSSI Values for 7-Series Modems Are Incorrectly Reported After Beam Switch	1.5.0.2
VELBUGS-2618	Remote Should Always Use the Worst Case Skew Limit From TIM Table During Authentication.	1.5.0.2
VELBUGS-2595	Terminal Unable to Reacquire After the Issued X-Pol Test Probe Command Has Been Canceled	1.5.0.2
VELBUGS-2553	Terminal Reports Invalid GPS (0,0) to PP with Position Validity Flag Set to 1 Causing Unnecessary Satellite Switch	1.5.0.2
VELBUGS-2540	Incorrect Community SNR Value Calculation for Terminal	1.5.0.2
VELBUGS-2536	Terminal Unable to Send Correct Satellite Details to ACU	1.5.0.2
VELBUGS-2530	CX751 Terminal With High Volume of Bi-Directional Traffic (TCP and VoIP) Randomly Becomes Unresponsive.	1.5.0.2
VELBUGS-2524	Upstream VoIP Performance Degradation (Based on MOS Score) in Mbps Mode	1.5.0.2
VELBUGS-2512/2500	Terminal Unable to Lock to GSC At First Attempt	1.5.0.2
VELBUGS-2510	Labels on Terminal GUI Randomly Not Displaying	1.5.0.2

Issues ID	Short Description	Fixed In
VELBUGS-2506	AERO Terminal Gets Stuck at Signaling Mode After an Extended TX Mute	1.5.0.2
VELBUGS-2491	SFTP Traffic Gets Stalled When Spoofer Is Enabled	1.5.0.2
VELBUGS-2488	Terminal Web UI Returns an Incorrect IF Frequency Value When LO>RF Frequency	1.5.0.2
VELBUGS-2473/ 2471/2455 (ISS-001626730	Geo-Location OOB Message Buffering Result in Abnormal Terminal Behavior	1.5.0.2
VELBUGS-2472 (ISS-00162752)	Terminal Unable to Pass any Traffic After Running for an Extensive Duration	1.5.0.2
VELBUGS-2436	Downstream Accelerated TCP Traffic in a GRE Tunnel Gets Stalled	1.5.0.2
VELBUGS-1948	Terminal Level Flight Skew Not Recalculated on a Satellite Switch Acquisition	1.5.0.2
VELBUGS-2462	Satellite Coordinates Are Not Stored in the Commissioning.json File	1.5.0.1
VELBUGS-2461	N/S/E/W for 'Remote Position' Are Not Stored in the Commissioning.json File	1.5.0.1
VLEBUGS-2460	Terminal Unable to Enforce MIR Limit for VR Traffic	1.5.0.1
VELBUGS-2457	System Time Storage Update Based on Clock Differences	1.5.0.1
VELBUGS-2453	Software Upgrade Using API Not Backward Compatible for Velocity Release 1.5.0.0	1.5.0.1
VELBUGS-2450	Terminal Sends Invalid Satellite Longitude and Wander to ACU	1.5.0.1
VELBUGS-2448	Remote Should Always Use the Worst Case Skew Limit from TIM Table During Acquisition	1.5.0.1
VELBUGS-2438	GRE Tunnel Unable to Pass Upstream UDP Traffic Due to Terminal Mishandling of GRE VLAN ID	1.5.0.1
VELBUGS-2437	GRE Tunnel Configured With TCP Acceleration Causes Traffics Stopped or Misdirected for All Other GRE Tunnels	1.5.0.1
VELBUGS-2404	Antenna Controller Console Uses Hard-Coded Credentials	1.5.0.1
VELBUGS-2403	GET Config/Partitions Should Not Include Partition Information While Install is in Progress	1.5.0.1
VELBUGS-2329	Falcon Restarts During Commissioning May Cause the Wizard to Get Stuck in Antenna Pointing Page	1.5.0.1
VELBUGS-1012	Terminal Gets Stuck if Visible Satellite in the Region Has No Carriers	1.5.0.1
VELBUGS-2322	Satellite Carrier Search Not Following Satellite Preference	1.5.0.0
VELBUGS-2307 / ISS-00154795	ACM Unable to Switch to DVB-S2 From GSC/ASC Mode Without Receiving the "s11xx" Message	1.5.0.0
VELBUGS-2301	Turning on CW Signal Using Cross Polarization/P1 dB Terminal Web UI Screen During Commissioning Mode Results in Error	1.5.0.0
VELBUGS-2251	Temperature and Status MIB Objects Not Getting Set Over SNMP	1.5.0.0
VELBUGS-2209	Cross-Pol Test Cannot Be Canceled From NMS Using RT Command	1.5.0.0

Issues ID	Short Description	Fixed In
VELBUGS-2183	Fixed Terminal (Without OpenAMIP) Should Not be Cycling Through the Satellite Search for Acquisition	1.5.0.0
VELBUGS-2157	Upstream GQoS Stats are Reported in Slots Instead of Symbols	1.5.0.0
VELBUGS-1980	Web Services API and LED Settings Provide Incorrect Information When Terminal is in Recovery Stack	1.5.0.0
VELBUGS-1809	Terminal Randomly Reports Min/Max Skew as "0 0" Causing Mute Event and Outages	1.5.0.0
VELBUGS-1740	'Fan Status' Displayed as 'Unknown' in Terminal WUI	1.5.0.0
VELBUGS-1462	Random epoll_ctl_mod Failure Messages Appear on Terminal Console	1.5.0.0
VELBUGS-1288	Inbound Filter Rule for Blocking Traffic Are Not Working for Terminal Side	1.5.0.0
VELBUGS-619	SSPC Misconfiguration of the Remote Can Cause a Falcon Application Restart	1.5.0.0
VELBUGS-2314	Anomalies in SNR Values Reported for Pilots/Headers in OpenAMIP "C" Message	1.4.0.3
VELBUGS-1486	Terminal Demands More Slots Than Required for Upstream Traffic	1.4.0.3
VELBUGS-2232	Short Term Fix for Terminal Demands Calculation	1.4.0.2
VELBUGS-2226	Output for "gpsvc window" Command Displays Incorrect Unit for Altitude	1.4.0.2
VELBUGS-2223	Composite Power Reporting in RSSI Message Permanently Disabled	1.4.0.2
VELBUGS-2200	Remotes Randomly Unable to Handle Certain POST/BIST Errors (980/CX780)	1.4.0.2
VELBUGS-2175	Inconsistencies for CW RT Commands	1.4.0.2
VELBUGS-2045	Receiver SNR Plot on Terminal WUI Dashboard Does Not Match "Receive SNR" Value Reported Under "Link Status"	1.4.0.2
VELBUGS-1936	Terminal Inconsistently Sends BGP SNR Community Attribute	1.4.0.2
VELBUGS-1933	ACU Link in Terminal Web UI Not Working	1.4.0.2
GXTAC-395 (ISS-00122937)	Terminal Fails to Reacquire Network After PP Cluster Restart	1.4.0.1
VELBUGS-1918	RSSI Message Reports Spike in Composite Power Value	1.4.0.1
VELBUGS-1917	Remote Always Bursting on Carrier ID 1 When Sending Re-Sync Bursts Even When ACQ Slot is Disabled	1.4.0.1
VELBUGS-1304	RTP Compression Works Inconsistently	1.4.0.1
VELBUGS-1009	Modifying an In-Use SSPC Causes Terminal to Reset	1.4.0.1
VELO-3546	Transmit IFL Reference Clock is Not Continuous	1.4.0.1
VELO-3540	Receiver SNR Plot Does Not Match the "Rx SNR" Reported Under "Link Status" on Terminal WUI Dashboard	1.4.0.1
VELO-3519	p1db Commissioning Test Fails for Cross Pol	1.4.0.1

Issues ID	Short Description	Fixed In
VELO-3501	Excluded Handling of Duplicate "w" Messages for Maritime Terminal	1.4.0.1
VELO-3475	Remotes With OpenAMIP Disabled Take Excessive Time to Acquire into the Network	1.4.0.1
VELO-3474	Incorrect Rx Status Reports on the Terminal WUI After Beam Switch	1.4.0.1
VELO-3350	Upstream TCP Session Occasionally Stalls Due to OTA Delay is Not Simulated or Simulated Less Than 140ms	1.4.0.1
VELO-3293	OTA_SatelliteBeamMap.json File Does Not Get Updated with Correct Roll-Off Values	1.4.0.1
VELO-3119	Terminal Update to Report Temperature Related Events	1.4.0.1
VELBUGS-1846	Inconsistent Terminal Power Calculation During Beam Switch	1.4.0.0
VELBUGS-1821	AERO Satellite Router Needs to Handle Up To 3 Consecutive "w" Message With Duplicate Time Stamp	1.4.0.0
VELBUGS-1811	Web Back-End Locks Up After a Certain Amount of Time Causing Terminal Web UI to be Unaccessible	1.4.0.0
VELBUGS-1805	Rx Griffin Does Not Forward Multicast Traffic to Paddy	1.4.0.0
VELBUGS-1785	AERO Terminal Fails to Reacquire After Falcon Restart	1.4.0.0
VELBUGS-1777	Restrictive Test for Adding a Satellite to the OTA Beam Map Causes Excessive Error Messages Print Out on Terminal Console	1.4.0.0
VELBUGS-1774	Beam Selector Outage Timer Not Always Reset During Acquisition	1.4.0.0
VELBUGS-1715	Terminal Should Not Start Bursting Unless Transmit is Unmuted	1.4.0.0
VELBUS-1668	Remote Web Service API "rx" Function Does Not Return Appropriate Fields per ICD	1.4.0.0
VELBUGS-1634	Parameters Missing in Remote Web Service "tx/0" API	1.4.0.0
VELBUGS-1579	Spoofer Crashes on Compressed Header When Header Compression is Disabled	1.4.0.0
VELBUGS-1516	Acquisition Burst Not Always Detected by Rx HLC on Make-Before-Break Beam Switch	1.4.0.0
VELBUGS-1479	Degraded Downstream 1-Way UDP Maximum Throughput	1.4.0.0
VELBUGS-1354	Remotes With Velocity Software Release 1.2.x.x or 1.3.x.x Not Able to Get the CONSTELLATION_OPT File OTA in a Velocity 1.1 Network	1.4.0.0
VELBUGS-1048	Terminal Exhibits Period Stalls in TCP Traffic	1.4.0.0
VELBUGS-857	Random Kernel Panic Warning When Resetting Falcon	1.4.0.0
VELBUGS-636	Paddy Terminates With Warnings When Performing Upgrade Using Terminal Web UI	1.4.0.0
VELBUGS-604 / RMTVELAA-1248	Segment ID Conflict Result in Small Error Rates On Upstream	1.4.0.0
VELBUGS-402	OTC Fails With Ramping Error on ADU	1.4.0.0
VELBUGS-396	Terminal With 12 SVNs Configured Randomly Hang and Reboot While Receiving DFOE	1.4.0.0

Issues ID	Short Description	Fixed In
VELO-3190	Remote Fails to Send Satellite Longitude and LO Frequency to Antenna	1.4.0.0
VELO-3118	Failed Remote Software Package Installation	1.4.0.0
VELO-3111	LNB Voltage Fluctuates During an ASC to DVB-S2 Service Carrier Switch	1.4.0.0
VPFT-291	Falcon Crashes Due to OpenBMIP Communication With Faulty BUC	1.4.0.0

Appendix D Previous Resolved Issues for Velocity PP

This appendix provides a compressed list of all issues previously resolved for Velocity PP.

Issues ID	Short Description	Fixed In
VELBUGS-2482 (ISS-00163088 / ISS-00165251)	Terminal Gets Stuck at Authentication Due to Not Getting DFOE	1.5.0.3
VELBUGS-2741	SAS Level Bandwidth Allocation Does Not Function Properly When a Channel is Brought Down and Up	1.5.0.3
VELBUGS-2734	Rx Line Card Failover Causes Terminal to Temporarily Drop Out of Network	1.5.0.3
VELO-6801	Communication From the NOC Group QoS Enforcer (GQE) to SAS GQE is Not Available	1.5.0.3
VELBUGS-2554 VELBUGS-2492	Remote Unable to Pass Traffic When Configured with Regional Geoscope GSP	1.5.0.2
VELBUGS-2443	PP Sends the Calculated Min and Max Skew Values Retained From the Remote Previous Location After a Mute/Unmute Event	1.5.0.2
VELBUGS-2071	PP_RTCP Process Does Not Respond to NMS RT Command After a Beam Switch Request	1.5.0.2
VELBUGS-2456	PP Sends Duplicate UCP Updates to Terminal Every 2 Seconds	1.5.0.1
VELBUGS-2446	GBWM GQE Terminated and Unable to Restart With "FAP Plan Type" configured as "Rolling"	1.5.0.1
VELBUGS-2424	Unable to Clean Up Invalid Route Entries in RT	1.5.0.1
VELBUGS-2423	PP Sends Incorrect "term_ds_total_bytes" Metric Value	1.5.0.1
VELBUGS-2285	Upstream IP Rate in Mbps Mode is Offset Up to 25% of the GSP MIR for Traffic with Less Than 80 Bytes Packet Size	1.5.0.1
VELBUGS-2361	Failure to Configure One Multicast IP Address to Multiple Remotes Causes Multicast Traffic to Fail	1.5.0.0
VELBUGS-2308	New Map Activation Causes Terminals to Drop Out of Network	1.5.0.0
VELBUGS-2218	PP Fails Remote Authentication Due to S/N Mismatch	1.5.0.0
VELBUGS-2211	Aggregated iNet Upstream Stats Are Incorrectly Reported as Zero From PP_DA	1.5.0.0

Issues ID	Short Description	Fixed In
VELBUGS-1940	Deleting a Specific Terminal SVN Causes Deletion of Another Active Terminal SVN	1.5.0.0
VELBUGS-1938	Fairness Relative to Base MODCOD Does Not Work	1.5.0.0
VELBUGS-1643	Incorrect Allocation Calculation for Absolute Priority Between 2 GSPs Using the Same iNet	1.5.0.0
VELBUGS-406	PP Process (pp_sync_opt) Unable to Update New Options	1.5.0.0
VELBUGS-405	pp_sync_opt Unable to Install all Options	1.5.0.0
VELBUGS-2344	LC Controller Power Cycles HLC Upon Heartbeat Failure	1.4.0.4
VELBUGS-2218	PP Fails Remote Authentication Due to S/N Mismatch	1.4.0.4
VELBUGS-2259 / VELBUGS-1939	Traffic Loss Occurs When Deleting an Active SVN	1.4.0.3
VELBUGS-2233	PP_LCC Crashes After an Active Chassis Slot Has Been Disabled	1.4.0.3
VELBUGS-1947	Mismatch Route Mapping After Remote Reacquired into Network Causes Traffic Disruption	1.4.0.3
VELBUGS-2181	Remote Unable to Acquire Into a Network Due to OTA Beam Map File with Large Message Size	1.4.0.2
VELBUGS-2005 / GXTAC-1115	PP_GKD Master Connection Issues	1.4.0.2
GXTAC-662 (ISS-00126255)	FAP Not Working When Geo-Scope Set as "Global"	1.4.0.1
GXTAC-483 (ISS-00123917)	Service Are Files Not Converted Accurately Due to Resolution Limit	1.4.0.1
VELBUGS-642	Line Cards Assume "FAIL" State - PP_LCC Reports No Heartbeat	1.4.0.1
VELBUGS-370	PP Process (PP_DA) Fails to Receive Tx Line Card SOF After RDS Switch	1.4.0.1
VELO-3543	PP GQE_CLT Process Crashes Due to Misconfiguration	1.4.0.1
VELO-3349	PP_RTCP Process Does Not Respond to NMS Rtcmd Process After Beam Switch Request	1.4.0.1
VELO-387	Mismatch Remote Total Received/Transmitted Values Between NMS FE and BE	1.4.0.1
VPFT-315	Incorrect Volume of Bytes Credited to Rolling FAP Type Allowance When Update Interval is Zero	1.4.0.1
VPFT-301	Unable to Establish Node in PP_NA/PP_DA After Adding/Modifying a Child GSP	1.4.0.1
VELBUGS-1757	RT Command HLC Power Off Fails if Fewer Than 20 Chassis Slots Configured	1.4.0.0
VELBUGS-1714	Beam Limits Should Be Able To Be Configured and Enforced At Any Nodes, Not Only on PTA Node	1.4.0.0
VELBUGS-1683	Event "TERMINAL_EXITED_SA" Reported to NMS Every 30 Seconds	1.4.0.0
VELBUGS-1612	Unable to Measure FAP Usage When FAP GSP is Configured With Fixed Plan Type and Weekly Recurrence Type	1.4.0.0

Issues ID	Short Description	Fixed In
VELBUGS-1609	FAP Top-Up Via RT Command Does Not Work	1.4.0.0
VELBUGS-1597	Protocol Processor Unable to Generate "SSPC_OUT_OF_SCOPE"	1.4.0.0
VLEBUGS-1434	Unable to Bring the Line Cards Back From Detached State in PP_LCC	1.4.0.0
VELBUGS-721	PP_TAP Console Occasionally Flooded With DFOE Messages During Acquisition	1.4.0.0
VPFT-288	PP_SYNC_OPT Sends Delete Notifications For Active Objects	1.4.0.0
VPFT-257	Cost Calculation Issue For Allocation Fairness Relative to SSPC (CIR/MIR)	1.4.0.0
VPFT-151	Requirement for Beam Limit Enforcement at All Nodes and Not Just PTA Nodes	1.4.0.0
VPFT-5	High CPU Usage by BGP Control Plane	1.4.0.0

Appendix E Previous Resolved Issues for Velocity Hub

This appendix provides a compressed list of all issues previously resolved issues for Velocity HUB.

Issues ID	Short Description	Fixed In
VELBUGS-2580	Full ARP Table Cause Intermittent SOF Drops	1.5.0.2
VELBUGS-2581	Build Issue in HLC Software Package 1.5.0.1-14	1.5.0.2
VELBUGS-2238	HLC Randomly Gets Powered Off	1.5.0.0
VELBUGS-1994	Line Card Randomly Goes Into Failed State After SAS (PP) Failover	1.5.0.0
VELBUGS-1885	Line Card Fails to Send Heart Beats to PP_LCC	1.5.0.0
VELBUGS-1795	LLC State Machine Does Not Gracefully Handle HLC FLL Unlock or NCR Unlock	1.4.0.1
VELBUGS-643	Issue with Line Card Reporting Critical Temperature Alarm	1.4.0.1
VELBUGS-1801	RCM Does Not Function Properly	1.4.0.0
VELBUGS-1766	FLL Unlock on Hub Line Cards	1.4.0.0
VELBUGS-1726	All Slots Are Powered Off When Disconnecting and Reconnecting One of the Two External Clock Source to the Hub Chassis	1.4.0.0
VELBUGS-1605	HLC Intermittently Gets Powered Off	1.4.0.0