

Library Changes from vMRF 1.1 to vMRF 1.4

Virtual Multimedia Resource Function

LIBRARY REVISION INFORMATION

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1 Introduction

This document shows the changes in the vMRF library between the following releases:

From vMRF 1.1 EN/LZN 745 0023 R2A

To vMRF 1.4 EN/LZN 745 0023 R5A

The following changes are shown:

- Documents added
- Documents changed
- Documents removed

The reason for a change is described, for example, new, updated, or removed features, as well as corrected faults and responses to change requests.

Minor changes, however, such as language corrections, link errors, and editorial improvements are not shown in the tables below unless these are the only corrections in the update.

2 Description of Changes

The structure in this section reflects the structure of the current library.



2.1 New and Changed Documents

2.1.1 Library Overview

Table 1 Library Overview

Title	Identity	Change
Glossary of Terms and Acronyms	0033-AXM 101 04/1 Uen L	Editorial change. Added SMMS and VNF-LCM in Glossary. Added LAF in section Glossary. Added the following terms in section Glossary: UUID, MPD, MSCML, MSML, EVRC, EVRC-A, EVRC-B, EVRC-NW, and NetAnn. Editorial changes.
How to Get Started with Active Library Explorer	1/1553-CRAH 301 1061 Uen H	Migrated to DITA CMS. Added trademarklist.
Free and Open Source Software	0962-AXM 101 04/1 Uen M	Added POCO C++ Libraries, Basic Edition version 1.7.3, and Boost C++ Library version 1.60. Uplifted the following FOSS: OpenSAF 5.0 to 5.1, json-cpp 0.6.0 to 0.6.0-rc2. Removed JSON for Modern C++. Ittng-ust, Ittng-tools, and GlusterFS uplift added. Added new FOSS libSRTP and POCO C++ library version 1.7.6. Updated FOSS versions in section License Information and License Texts. Editorial changes. libSRTP uplift to 2.0.0. libsrtp 2.0.0 -> 2.1.0, OpenSAF 5.1 -> 5.17.07. New licenses: libdnet 1.12, libmspack 0.5alpha, open-vm-tools 10.1.10.



2.1.2 Product Overview

Table 2 Product Overview

Title	Identity	Change
vMRF Overview	1/155 13-AXM 101 04/1 Uen E	<p>Added new section Address Resolution and Fetching the Next Hop Address. Added Packet Loss Concealment in subsection Pulse Code Modulation Service (PCM).</p> <p>Added EVS in the list of supported audio codecs in Function Overview and Audio Conferencing. Added new subsection Enhanced Voice Services (EVS) in Media Stream Processing Services. Added note in section Function Overview on EVS capacity license and NeLS. Added new section Audio Codec Selection Principles.</p> <p>Updated image and description in subsection vMRF Architecture. Added new section Limitations and Differences. Added configuration backups in the list of stored elements in Shared Storage. Added new subsection Tone Sender Service in Media Stream Processing Services. Added new section Automatic Backup and Restore.</p>
vMRF Infrastructure Requirements	1/1056-AXM 101 04/1 Uen V	<p>Updated L3 redundancy requirement text in Network Requirements and Number of vCPUs in Compute Requirements.</p> <p>Updated in Network Requirements that IPv4 media, O&M, and signaling network next hop addresses are fetched from a DHCP server. Added in Path supervision that ICMP is required for router advertisement for IPv6. Added DHCP server support requirement and recommendation on redundancy in Network Requirements. Updated in Storage Requirements that a VM uses storage for booting and for data, and the boot disk must be local.</p> <p>Editorial changes only.</p> <p>Editorial changes only.</p> <p>Updated Compute host in section Compute Requirements.</p> <p>Updated IP address allocation row in section Network Requirements.</p>

**Table 3** *Product Overview/Statement of Compliance*

Title	Identity	Change
Virtual MRF High Level Statement of Compliance	1/174 02-AXM 101 04/1 Uen E	Support for EVS codec added. Editorial changes only. Updated standard versions in 3GPP Standards; added new standard RFC 5707 in IETF Standards. Updated Compliance and Comment for the following standards: E.182 (03/1998), G.100.1, G.664 (03/2003), G.711 (11/1988), G.719 (06/2008), G.722 (11/1988), G.729 (01/2007), H.248.1 (09/2005), H.264 (01/2012), Q.23 (11/1988), and Q.24 (11/1988), 22.153(V14.1.0), 23.218 (V14.0.0), 23.228 (V14.5.0), 23.333 (14.2.0), 24.147 (V14.1.0), 24.229 (V14.5.0), 26.071 (V14.0.0), 26.073 (V14.0.0), 26.074 (V14.0.0), 26.090 (V14.0.0), 26.091 (V14.0.0), 26.092 (V14.0.0), 26.093 (V14.0.0), 26.094 (V14.0.0), 26.101 (V14.0.0), 26.103 (V14.0.0), 26.114 (V14.5.0), 26.171 (V14.0.0), 26.173 (V14.0.0), 26.174 (V14.0.0), 26.190 (V14.0.0), 26.191 (V14.0.0), 26.192 (V14.0.0), 26.193 (V14.0.0), 26.194 (V14.0.0), 26.194 (V14.0.0), 26.201 (V14.0.0), 26.235 (V12.0.0), 26.441 (V14.0.0), 26.442 (V14.0.0), 26.444 (V14.0.0), 26.445 (V14.0.0), 26.446 (V14.0.0), 26.447 (V14.0.0), 26.448 (V14.0.0), 26.449 (V14.0.0), 26.450 (V14.0.0), 26.451 (V14.0.0), 29.333 (V14.1.0), 32.401 (V14.1.0), 32.409 (V14.1.0), 46.051 (V14.0.0), 46.054 (V14.0.0), 46.060 (V14.0.0), 46.061 (V14.0.0), 46.062 (V14.0.0), 46.081 (V14.0.0), 46.082 (V14.0.0), 3GPP2 C.S0014-D (V3.0), RFC 768, RFC 791, RFC 792, RFC 793, RFC 826, RFC 894, RFC 1042, RFC 1122, RFC 1305, RFC 1868, RFC 2046, RFC 2131, RFC 2460, RFC 2464, RFC 2616, RFC 2976, RFC 3261, RFC 3311, RFC 3389, RFC 3412, RFC 3413, RFC 3414, RFC 3416, RFC 3417, RFC 3550, RFC 3551, RFC 3558, RFC 3584, RFC 3826, RFC 3986, RFC 4028, RFC 4240, RFC 4291, RFC 4566, RFC 4582, RFC 4583, RFC 4585, RFC 4588, RFC 4733, RFC 4788, RFC 4855, RFC 4867, RFC 4960, RFC 5022, RFC 5104, RFC 5404, RFC 5952, RFC 6184, RFC 6241, RFC 6386, RFC 6716, RFC 6884, https://tools.ietf.org/html/draft-ietf-secsh-filexfer-02 , IEEE 802.2 (1998 Edition), PRD IR.92, v7.1, and PRD IR.94, v6.0.

2.1.3 Planning

Table 4 *Planning*

Title	Identity	Change
vMRF Network Impact Report	10948-FGC 101 3314 Uen E	Updated for vMRF 1.2. Updated for vMRF 1.3.

2.1.4 Installation

Table 5 *Installation*

Title	Identity	Change
VNF Life Cycle Management	17/1553-AXM 101 04/1 Uen E	New document



Table 5 Installation

Title	Identity	Change
Deployment Guide for Cloud Execution Environment (CEE)	4/1531-AXM 101 04/1 Uen X	<p>Updated network reserved for future use to network for regulatory services in Create Network Topology. Added note on example yaml files in the following sections: Download and Extract Software Delivery Package, Create Network Topology, and Create Subnets.</p> <p>Updated mrvs_ prefixes to mrf_ in Prepare Deployment Parameters. Updated in Prepare Deployment Parameters that the mrf_config parameter does not contain the path but the file content.</p> <p>Editorial changes only.</p> <p>Removed subsection Disable ARP Spoofing Protection on all Compute Hosts in the vMRF Availability Zone. Added Prerequisite in Instantiate and Check vMRF with One VM. Added Reference List.</p> <p>Updated steps 3 and 4 in Check vMRF Status. Updated stack update procedure in Scale Out to Full VNF Size. Added note in Step 2, Scale Out to Full VNF Size. Added ntp_server parameter to 6.5 Prepare Deployment Parameters. Updated the following sections: In vMRF Deployment Process for CEE: Removed step d., on preparing initial configuration. Moved step f. to the last step position. Added information in note, step e. Updated image map. Rearranged the last four topics of deployment. Added rows ConfigImport and LM in command printout in Instantiate and Check vMRF with One VM. Editorial changes.</p>
Deployment Guide for OpenStack	1/1531-AXM 101 04/1 Uen X	<p>Added note on example yaml files in the following sections: Download and Extract Software Delivery Package, Create Network Topology, and Create Subnets.</p> <p>Updated mrvs_ prefixes to mrf_ in Prepare Deployment Parameters. Updated in Prepare Deployment Parameters that the mrf_config parameter does not contain the path but the file content.</p> <p>Editorial changes only.</p> <p>Added Prerequisite in Instantiate and Check vMRF with One VM. Added Reference List.</p> <p>Updated steps 3 and 4 in Check vMRF Status. Removed the following subsections: Prepare Initial Configuration Data (Optional), Prepare the Initial Configuration Tar File, and Edit the Initial Configuration XML File. Updated printout example in Check vMRF Status. Removed Step 3, on importing initial configuration in Prepare Deployment Parameters. Updated stack update procedure in Scale Out to Full VNF Size. Added note in Step 2, Scale Out to Full VNF Size. Added container folder of DHCP and manual IP address configuration deployment yaml files in Download and Extract Software Delivery Package. Updated manual IP configuration to "platform automatic IP address configuration" in Download and Extract vMRF Software Delivery Package. Added ntp_server parameter to Prepare Deployment parameters. Updated the following sections: In vMRF Deployment Process for OpenStack: Removed step d., on preparing initial configuration. Moved step f. to the last step position. Added information in note, step e. Updated image maps. Rearranged the last four topics of deployment.</p>
Upgrade Guide	7/1553-AXM 101 04/1 Uen K	<p>Restructured document. Added new section Network-Redundant Upgrade. Renamed Manual Upgrade Process to In-Service Upgrade.</p> <p>Added graceful lock option through MTAS configuration in the following sections: Lock and Scale-in VMs, Commit to Using the New Version, and Remove Rollback Procedure. Added prerequisite in Deploy the New Version.</p>



2.1.5 Initial Configuration

Table 6 Initial Configuration

Title	Identity	Change
Initial Configuration Guide	9/1553-AXM 101 04/1 Uen M	<p>Editorial changes only.</p> <p>Added MrfH248Control MO attribute in Initial Configuration Data for the vMRF Application. Added announcement-related attributes in Initial Configuration Data for the vMRF Application. Added the following subsections: Create a Variable Announcement and Modify the Default Language Code under new section Announcement Configuration. Moved section Create and Import Configuration Data into section Importing Configuration Data from NETCONF Template. Added new step 1 and 2 in Configure vMRF Signaling. Added the following new parameters in Table SCTP Profile Attributes: enablePathMtuDiscovery, maxSctpPduSize.</p> <p>Moved subsection Manual Configuration to position 3.1. Updated Create and Import Configuration Data. Updated Manual Configuration. Added the following sections: Emergency and Priority Call Handling, Configuration of Priority Pool. Added information on example configuration for ECLI provided in software delivery package in Manual Configuration.</p>

2.1.6 Operation and Maintenance

Table 7 Operation and Maintenance

Title	Identity	Change
CLI Commands	10/1553-AXM 101 04/1-V2 Uen S	<p>Added new subsection for license_info. Added new subsection smms-counters.</p> <p>Updated command description and added printout in verify_vmrf_cluster_status.py. Added table in verify_vmrf_node_status.py.</p> <p>Editorial changes only.</p>

Table 8 Operation and Maintenance/vMRF Managed Object Model (MOM)

Title	Identity	Change
Managed Object Model for vMRF	190 89-4/AXM 101 04/1 Uen G	

Table 9 Operation and Maintenance/Fault Management/Alarms

Title	Identity	Change
MRF H.248 Link Unavailable	2/1543-AXM 101 04/1 Uen K	<p>Updates in Remote Endpoint Configuration Fault.</p> <p>Editorial changes only.</p>

Table 10 Operation and Maintenance/Fault Management/Troubleshooting Information

Title	Identity	Change
vMRF Troubleshooting Guideline	6/1553-AXM 101 04/1 Uen M	<p>Editorial changes only.</p> <p>Added graceful lock option thorough MTAS configuration for vMRF in Manual Recovery Flow. Added Reference List.</p> <p>Editorial changes only.</p>



Table 11 *Operation and Maintenance/Configuration Management*

Title	Identity	Change
Configuration Management	5/1553-AXM 101 04/1 Uen V	<p>Added note in Scale-in Procedure in section Manual Scaling in OpenStack. Added note in Scale-in Procedure in section Manual Scaling in VMware.</p> <p>Added note in section Manual Scaling. Added scale-out commands for both Kilo-based and Mitaka-based cloud services in Scale-out Procedure.</p> <p>Editorial changes only.</p> <p>Updated Modify the Default Language Code and moved it to section 4.2. Added new section EVS Configuration and subsections. Added new section Reference List. Added new prerequisite in Scale-out Procedure.</p> <p>Added note in subsection Scale-out Procedure.</p> <p>Added new section Modifying Tone Parameters.</p> <p>Editorial changes only.</p>

Table 12 *Operation and Maintenance/Configuration Management/File Management*

Title	Identity	Change
File Management	6/1551-AXM 101 04/1 Uen A	<p>New document</p> <p>New document based on File Management (6/1551-APA 901 44/1 Uen G).</p>

Table 13 *Operation and Maintenance/Performance Management*

Title	Identity	Change
Performance Indicators	2/1551-AXM 101 04/1 Uen J	Added info on timestamp in PM files to Overview section.

Table 14 *Operation and Maintenance/Security Management*

Title	Identity	Change
vMRF Security Management	14/1553-AXM 101 04/1 Uen N	<p>Updated the following GIDs in O&M Administrator Access Control: mrf-op, mrf-ts, mrf-msr.</p> <p>Editorial changes only.</p> <p>Updated journalctl SYSLOG_FACILITY=4 - sshd access logs to journalctl _COMM=sshd access logs and journalctl SYSLOG_FACILITY=17 - NBI audit logs to journalctl _COMM=com - NBI audit logs in Recommended Periodic Operations.</p>

2.1.7 Emergency

Table 15 *Emergency*

Title	Identity	Change
Emergency Recovery Procedure for vMRF	16/1553-AXM 101 04/1 Uen E	Removed need to cluster run node verification script and added info on list of faulty VMs in subsection Verify VNF Status.



2.2 Removed Documents

Table 16 Documents Removed from Library

Title	Identity	Comment
File Management	6/1551-APA 901 44/1 Uen G	