

# Library Changes from vMRF 1.6.0 to vMRF 1.7.0

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 1.6.0 EN/LZN 745 0023 R7A  
**To** vMRF 1.7.0 EN/LZN 745 0023 R8A

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 V	Added the following terms in section Glossary: CLISS (CLI Secure Shell), VDP (Virtual Deployment Package), and vCD (vCloud Director).  Added LFV (Logic File Validator) in Glossary.
Trademark Information	2/006 51-AXM 101 04/1 Uen C	New document
Free and Open Source Software	0962-AXM 101 04/1 Uen V	Removed GlusterFS.
How to Get Started with Ericsson Library Explorer	1/1553-LXA 119 1929 Uen B	New document



## 2.1.2 Product Overview

Table 2 Product Overview

Title	Identity	Change
vMRF Overview	1/155 13-AXM 101 04/1 Uen H	Support for Watchdog Feature updated with configurable parameters. DHCP support discontinued: updated that local IP addresses are either fetched from a predefined IP address pool, or provided manually instead of being fetched from a DHCP server in Address Resolution and Next Hop Supervision. Added that next hop IP addresses for IPv4 media networks, the O&M network, and signaling networks are fetched from the HOT and OVF template files instead of from a DHCP server in Address Resolution and Next Hop Supervision. Added note on IPv6 Stateless Address Autoconfiguration in Address Resolution and Next Hop Supervision. Updated row on enabling graceful shutdown of the VM in VMware Tools. Mentioned in section "Virtual Machine Functions in vMRF" that the internal VLAN must not be exposed to external networks. Added Internal VLAN to "Figure 3 VNF Architecture".
vMRF Infrastructure Requirements	1/1056-AXM 101 04/1 Uen AD	DHCP support discontinued: Removed DHCP-related information in row IP address allocation in Network Requirements.
vMRF Networks and Connectivity	2/15517-AXM 101 04/1 Uen A	New document First version of document.

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 H	Editorial changes.

## 2.1.3 Planning

Table 4 Planning

Title	Identity	Change
vMRF Network Impact Report	10948-FGC 101 3314 Uen K	Updated for 1.7.0.



## 2.1.4 Installation

Table 5 Installation

Title	Identity	Change
VNF Life Cycle Management	17/1553-AXM 101 04/1 Uen S	<p>Updated file permission granting for jboss_user in Onboard the VNF Package on VNF-LCM for the small stack scenario. Updated Step 2 with the location of the script in Prepare VNF Deployment Parameters. Added flavor to the list of parameters not transferred from the old VNF, and that it is contained in the env.yaml file of the new VNF in Prerequisites in Upgrade VNF. Changed path /vnflcm-ext/backups/workflows/vnfd to /vnflcm-ext/current/vnf_package_repo. Changed path /vnflcm-ext/backups/workflows/vnfd to /vnflcm-ext/current/vnf_package_repo. Changed command chmod 770 to 777 for /vnflcm-ext/backups/workflows/vnfd/VNFType_VNFVersion/configurations. Updated main.yaml in Example in Onboard the VNF Package on VNF-LCM. Removed step on copying lcmScripts. Updated figures in Upgrade VNF. Updated Prepare Deployment Parameters procedure with small stack and full stack scenario specific instructions.</p> <p>New optional steps for backing up and restoring certificate files for the optional customer security layer between LM and NeLS in Upgrade VNF. Updated procedure in Onboard the VNF Package on VNF-LCM. "Onboard the VNF Package on VNF-LCM" renamed to "Onboard the Virtual Deployment Package on VNF-LCM". Minimum version requirements updated to the following: vIMS workflows: 1.12.0, VNF-LCM: 18.12 or higher (minimum SW media version: 4.7.13).</p> <p>Added new step for vIMS workflows 1.13.0 and higher for handling SSH keys in Onboard the Virtual Deployment Package on VNF-LCM. Updated private SSH keys folder path in Onboard the Virtual Deployment Package on VNF-LCM.</p> <p>Added EO-related content in Introduction, Prerequisites, and Prepare Deployment Parameters. Added new section Onboarding and its subsections. Added image in Onboarding.</p>
VNF Life Cycle Management for VMware	18/1553-AXM 101 04/1 Uen G	<p>Correction in env-vcd.yaml example in Onboarding. Minimum version requirements updated to the following: vIMS workflows: 1.12.0, VNF-LCM: 18.12 or higher (minimum SW media version: 4.7.13).</p> <p>Updated note in step 2 on how to provide data with multiple line breaks in Onboarding. Added new step for vIMS workflows 1.13.0 and higher for handling SSH keys in Onboarding. Updated private SSH keys folder path Onboard the Virtual Deployment Package on VNF-LCM.</p> <p>Added example information for shared storage and announcement configurations in env-vcd.yaml file example in Onboarding. Updated fingerprint for announcement storage configuration in env-vcd.yaml file example in Onboarding.</p>



Table 5 Installation

Title	Identity	Change
Deployment Guide for Cloud Execution Environment (CEE)	4/1531-AXM 101 04/1 Uen AG	<p>Added section "Define Anti-Affinity Policy in Specific Traffic Cases". Order of sections "Upload the Image" and "Prepare Deployment Parameters" is switched. Order of sections "Upload the Image" and "Prepare Deployment Parameters" is switched.</p> <p>Added new parameters <code>watchdog_interval</code> and <code>watchdog_enable</code> in Prepare Deployment Parameters. Added footnotes in section "Create Network Topology" and "Prepare Deployment Parameters" that the network reserved for future use is mandatory. YAML file example corrected in "Define Anti-Affinity Policy". Reference to "network reserved for future use" is removed in section "Create Network Topology". Parameter <code>rsrv_net_name</code> removed in section "Prepare Deployment Parameters". Specified that the parameter <code>payload_instance_count</code> controls the total number of VMs to be created in section "Prepare Deployment Parameters". Instantiation parameter changed from <code>heat stack-create -f vmrf.yaml -e example_environment.yaml -P payload_instance_count=0</code> to <code>heat stack-create -f vmrf.yaml -e example_environment.yaml -P payload_instance_count=1</code> in section "Instantiate and Check vMRF with One VM".</p> <p>DHCP support discontinued: removed table in Step 3 in Download and Extract vMRF Software Delivery Package. The only option is using the files in the <code>cee</code> folder. Added in Prepare Deployment Parameters that the shared storage and announcement server SSH key must be included in single quotation marks. Added command example on generating the private key input for announcement and shared storage servers in Prepare Deployment Parameters. Added in Prepare Deployment Parameters that shared storage and announcement storage server paths are POSIX paths.</p>
Deployment Guide for OpenStack	1/1531-AXM 101 04/1 Uen AG	<p>Added section "Define Anti-Affinity Policy in Specific Traffic Cases". Order of sections "Upload the Image" and "Prepare Deployment Parameters" is switched.</p> <p>Added new parameters <code>watchdog_interval</code> and <code>watchdog_enable</code> in Prepare Deployment Parameters. Added footnotes in section "Create Network Topology" and "Prepare Deployment Parameters" that the network reserved for future use is mandatory. YAML file example corrected in "Define Anti-Affinity Policy". Reference to "network reserved for future use" is removed in section "Create Network Topology". Parameter <code>rsrv_net_name</code> removed in section "Prepare Deployment Parameters". Specified that the parameter <code>payload_instance_count</code> controls the total number of VMs to be created in section "Prepare Deployment Parameters". Instantiation parameter change from <code>heat stack-create -f vmrf.yaml -e example_environment.yaml -P payload_instance_count=0</code> to <code>heat stack-create -f vmrf.yaml -e example_environment.yaml -P payload_instance_count=1</code> in section "Instantiate and Check vMRF with One VM".</p> <p>DHCP support discontinued: Removed DHCP-related information from Step 5 in Download and Extract vMRF Software Delivery Package. Added in Prepare Deployment Parameters that the shared storage and announcement server SSH key must be included in single quotation marks. Added command example on generating the private key input for announcement and shared storage servers in Prepare Deployment Parameters. Added in Prepare Deployment Parameters that shared storage and announcement storage server paths are POSIX paths.</p>



Table 5 Installation

Title	Identity	Change
Deployment Guide for VMware vSphere	2/1531-AXM 101 04/1 Uen AC	<p>Clarified which vApp property is optional in Deploy the OVF Template.</p> <p>Added footnote on private key format to Announcement storage ssh private key in Deploy the OVF Template. Removed reference to "Content Library" as it is no longer supported with IP Pool deployments in section "Deploy the OVF Template". Removed section "Prerequisite for Future Deployments" Removed vAPP Property "LI IP address" and "LI Subnet mask length" in section "Deploy the OVF Template". Reference to "network reserved for future use" is removed. in section "Create Network Topology". Added footnote stating that PM data monitoring configuration is optional for platform automatic IP address allocation and added PM data monitoring in table for manual IP address allocation Deploy the OVF Template. Added substep with table on setting VM properties in Deploy the OVF Template. Specified that the password for the emergency user can be changed only during deployment in section "Deploy the OVF Template".</p> <p>Added in Deploy the OVF Template that the announcement server SSH key must be included in single quotation marks. Added command example on generating the private key input for announcement and shared storage servers in Deploy the OVF Template. Added in Deploy the OVF Template that shared storage and announcement storage server paths are POSIX paths.</p>
Deployment Guide for VMware vCloud Director	5/1531-AXM 101 04/1 Uen G	<p>Added footnote on private key format to Announcement storage ssh private key in Deploy vApp from the Catalog. Untrusted 1, Untrusted 2, and Trusted networks are replaced with "user plane network towards media networks" in section "Scale-out Using the Catalog". Note added in section "Power on vMRF vApp" on VM Configuration after Power on. Specified that the password for the emergency user can be changed only during deployment in section "Deploy vApp from the Catalog".</p> <p>Added in Deploy vApp from the Catalog that the announcement server SSH key must be included in single quotation marks. Added command example on generating the private key input for announcement and shared storage servers in Deploy vApp from the Catalog. Added in Deploy vApp from the Catalog that shared storage and announcement storage server paths are POSIX paths.</p>
Upgrade Guide	7/1553-AXM 101 04/1 Uen V	Added new step on backing up and re-adding certificates and certificate configuration file in Export Configuration Data from the Old Version and Deploy the New Version.

## 2.1.5 Initial Configuration

Table 6 Initial Configuration

Title	Identity	Change
Initial Configuration Guide	9/1553-AXM 101 04/1 Uen Z	Editorial changes only.



## 2.1.6 Operation and Maintenance

Table 7 Operation and Maintenance

Title	Identity	Change
CLI Commands	10/1553-AXM 101 04/1-V2 Uen AB	Added table Status Verification Summary in verify_vmrfr_cluster_status.py. Updated command access information from POSIX group to role in collectData.py. Changed "DHCP assigned IP:" to "IP address:" in command printout in section status. Command "cluster" introduced in section "vMRF Utility Scripts" as subsection. Column heading "Operational State" with "VM Status" in following cli tool printouts: verify_vmrfr_cluster_status.py, cluster list.

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 M	

Table 9 Operation and Maintenance/Fault Management/Alarms

Title	Identity	Change
Compute Resource Threshold Value Exceeded	10/1543-AXM 101 04/1 Uen M	Editorial changes only.
License Management, Autonomous Mode Activated	5/1543-AXM 101 04/1 Uen D	Editorial changes only.
License Management, Emergency Unlock Reset Key Required	13/1543-AXM 101 04/1 Uen D	Editorial changes only.
License Management, Key File Fault	14/1543-AXM 101 04/1 Uen D	Editorial changes only.
MRF Announcement File Missing	8/1543-AXM 101 04/1 Uen E	Editorial changes only.
MRF Announcement Storage Unavailable	9/1543-AXM 101 04/1 Uen E	Editorial changes only.
MRF H.248 Link Unavailable	2/1543-AXM 101 04/1 Uen U	DHCP support discontinued: removed Step 1 on checking local signaling IP address in Local Endpoint Configuration Fault.
MRF Instance 80% Capacity Limit Exceeded	4/1543-AXM 101 04/1 Uen N	Editorial changes only.
MRF Instance Overloaded	15/1543-AXM 101 04/1 Uen N	Editorial changes only.
MRF IP Address Collision	3/1543-AXM 101 04/1 Uen L	New document
MRF IP Auto-Configuration Failure	12/1543-AXM 101 04/1 Uen L	DHCP support discontinued: updated alarm description and remedy steps.
MRF Media Stream Recording Active	7/1543-AXM 101 04/1 Uen M	Editorial changes only.
MRF Next Hop Router Unreachable	18/1543-AXM 101 04/1 Uen E	DHCP support discontinued: Removed DHCP-related information in MRF Next Hop Router Unreachable Alarm Description and removed Step 3 on checking DHCP server configuration in Cease the MRF Next Hop Router Unreachable Alarm.
Service Level Agreement Violation	11/1543-AXM 101 04/1 Uen L	Editorial changes only.



Table 10 Operation and Maintenance/Fault Management/Events

Title	Identity	Change
Event List	5/1551-AXM 101 04/1 Uen H	Editorial changes only.

Table 11 Operation and Maintenance/Fault Management/Troubleshooting Information

Title	Identity	Change
vMRF Troubleshooting Guideline	6/1553-AXM 101 04/1 Uen Y	Note added on behaviour of alarms related to MrgfInstance while locking the VM in section "Manual Recovery Flow".  DHCP support discontinued: Removed DHCP-related information in No Connection to NextHop. Changed "DHCP OK" to "STATIC" in command printout in No Connection to Client. Removed signaling-related trouble case No IP Address Available for Signaling.
Media Stream Recording	11/1553-AXM 101 04/1 Uen G	Editorial changes only.

Table 12 Operation and Maintenance/Fault Management/Data Collection

Title	Identity	Change
Data Collection Guideline	6/1543-AXM 101 04/1 Uen K	Updated option -d with CLISS configuration. Option -a does not collect binaries. Added a note on binary collection for option -a. Added a list of commands run (CLI tool commands, System commands) for option -c. Defined that option -v results in the same data output as option -c, and provides the result of mpstat "-P ALL 5 1" too. eLo psr,pid,ppid,tid,pcpu,rs,rs,time,comm,cmd corrected to ps eLo psr,pid,ppid,tid,pcpu,rs,rs,time,comm,cmd in section "Overview of Data Collection". Added information on the "cluster run" option in the part on option "-c". Expanded and reordered information (added Gluster volume information and Cloud init data) on collected data for option "-d".  "Overview of Data Collection": The data collection script does not collect Gluster volume related information any longer.



Table 13 Operation and Maintenance/Configuration Management

Title	Identity	Change
Configuration Management	5/1553-AXM 101 04/1 Uen AF	<p>Scale-in Procedure in OpenStack: Updated note on scaling in VMs in Step 2. Replaced option -e and -f for heat stack-update with -x. Updated note in Step 4.</p> <p>Manual Scaling in VMware and its subsections added. Maximum number of PM files is changed to 500 from 250 in section "Configure Compression for Performance Management XML Files". Removed references to Content Library as it is no longer supported with IP Pool deployments in section "Scale-out Procedure". Added steps on Powering on the VM and checking it in addition to configuring it by Manual IP deployments in section Scale-out Procedure for VMware environments. Filepaths for basic and variable announcements are corrected in sections "Create a Basic Announcement", "Create a Variable Announcement" and "Handling of Announcement Files". Sections "Scale-out Procedure" and "Scale-in Procedure" renamed to "Scale-out Procedure in vCenter Environment" and "Scale-in Procedure in vCenter Environment" respectively. New sections introduced: "Scale-out Procedure in vCloud Environment" and "Scale-in Procedure in vCloud Environment". Untrusted Network 1, Untrusted Network 2, Trusted Network are removed from vMRF. vNIC3 is remapped to network for "User plane towards media networks". Added MO results in "Scale-out Procedure in vCloud Environment". Added MO results in "Scale-in Procedure in vCloud Environment". Scale-in example "payload_instance_count" is corrected in section "Scale-in Procedure". This parameter controls the total number of VMs.</p> <p>Section order reorganized.</p> <p>Added note on operationalState attribute in Step 5 in "Lock a VM".</p>

Table 14 Operation and Maintenance/Configuration Management/File Management

Title	Identity	Change
File Management	6/1551-AXM 101 04/1 Uen E	Command added for accessing the folders for the following file types: PM XML files, alarm and alert logs in section "Functions and Concepts".

Table 15 Operation and Maintenance/Performance Management

Title	Identity	Change
Performance Indicators	2/1551-AXM 101 04/1 Uen S	Added note on the maximum number of PM files in section "Performance Management Overview".

Table 16 Operation and Maintenance/Security Management

Title	Identity	Change
vMRF Security Management	14/1553-AXM 101 04/1 Uen AA	<p>Specified that the Troubleshooter user also has root privileges in section "Reserved POSIX Groups". Added description of the "system-ts" POSIX group in section "Reserved POSIX Groups". Reference added to Deployment Guides regarding emergency user definition in section "Reserved POSIX Groups".</p> <p>Added MrfApplicationMomAccess in section "OAM Administrator Access Control".</p> <p>Removed SNMP over DTLS from table in Services, Ports, and Protocols. Added port 162 for SNMP traps in table in Services, Ports, and Protocols. Added footnotes for SNMP ports 161 and 162 in Services, Ports, and Protocols.</p>
vMRF Hardening Guideline	12/1553-AXM 101 04/1 Uen K	Added the default value for the name of the emergency user (mrsv-admin) in section "Hardening during Installation".



Table 17 Operation and Maintenance/Software Management

Title	Identity	Change
vMRF Backup and Restore Guideline	13/1553-AXM 101 04/1 Uen V	Removed subsection Restore without Re-Deployment.

Table 18 Operation and Maintenance/Software Management/License Management

Title	Identity	Change
License Management	1/1553-AXM 101 04/1 Uen D	Added new section vMRF Licenses and its subsections.
Update NeLS Connection	1/1543-AXM 101 04/1 Uen D	Editorial changes only.

### 2.1.7 Emergency

Table 19 Emergency

Title	Identity	Change
Emergency Recovery Procedure for vMRF	16/1553-AXM 101 04/1 Uen K	Editorial changes.

## 2.2 Removed Documents

Table 20 Documents Removed from Library

Title	Identity	Comment
Trademark Information	1/006 51-APA 901 44/1 Uen G	