

TeraVM

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# TeraVM Release Notes

TeraVM Release 13.0



## Help and Support

TeraVM User Documentation, Online Training Guides and Videos are available on the documentation portal:

<http://ats.aeroflex.com/login-account>

For support queries, please log a call on the Cobham Wireless Support Portal

<https://support.aeroflex.com/>

For help on using the support portal, download the [Cobham Wireless Customer Support Portal User Guide](#).

(For accounts, please contact your local Cobham Account Representative).

### **Note**

You can also contact support using the mail alias for your region:

[TeraVMSupport.CN@aeroflex.com](mailto:TeraVMSupport.CN@aeroflex.com) (China)

[TeraVMSupport.EMEA@aeroflex.com](mailto:TeraVMSupport.EMEA@aeroflex.com) (EMEA)

[TeraVMSupport.USA@aeroflex.com](mailto:TeraVMSupport.USA@aeroflex.com) (North America)

[TeraVMSupport.JP@aeroflex.com](mailto:TeraVMSupport.JP@aeroflex.com) (Japan)

[TeraVMSupport.KO@aeroflex.com](mailto:TeraVMSupport.KO@aeroflex.com) (Korea)

[TeraVMSupport.SG@aeroflex.com](mailto:TeraVMSupport.SG@aeroflex.com) (South East Asia)

[TeraVMSupport.IND@aeroflex.com](mailto:TeraVMSupport.IND@aeroflex.com) (India)

# Table of Contents

<b>Chapter 1. What's New in 13.0</b> .....	<b>1</b>
1.1. Netflow Emulation .....	1
1.2. VoIP Improvements .....	1
1.3. RTSP Response Codes .....	2
1.4. HTML5 Network Settings Improvements .....	2
1.5. Microsoft Active Directory Service Improvements .....	4
1.6. Centralized Test Library .....	4
1.6.1. TCP Maximum Connections Per Second Test .....	4
1.6.2. Cyber Security Resiliency Test .....	5
<b>Chapter 2. Upgrading to this Release</b> .....	<b>6</b>
2.1. Check Your Current Versions against Upgrade Installer .....	7
<b>Chapter 3. Platforms</b> .....	<b>9</b>
3.1. Hardware .....	9
3.2. Hypervisors .....	9
3.3. Operating Systems .....	10
3.4. Web Browsers .....	10
<b>Chapter 4. Bugs Fixed and Known Issues</b> .....	<b>12</b>
4.1. Bugs Fixed .....	12
4.2. Known Issues .....	12
<b>Appendix A. TeraVM Documentation Set</b> .....	<b>14</b>

## Chapter 1. What's New in 13.0

New features, changes, and updates made in this release are detailed in this section.

### 1.1. Netflow Emulation

NetFlow is a Cisco introduced network protocol that collects statistics on IP network traffic as it enters or exits an interface. Cisco NetFlow is made up three parts: the Analysis Application, the NetFlow Collector, and the NetFlow Exporter. TeraVM Netflow emulates the NetFlow Exporter by creating an application called the Netflow Export Agent. The Netflow Export Agent produces Netflow packets and sends them to the Netflow Collector, where the device under test is the Netflow Collector.

TeraVM Netflow emulation can be found under the menus **Applications > Netflow** with the sub-menus **Netflow Export Agent(s)** and **External Netflow Collector**. For more information on the Netflow feature and how to provision it, see the *TeraVM Java Client User Guide*.

### 1.2. VoIP Improvements

This release sees the inclusion of several improvements to the VoIP implementation. For more information, see the *TeraVM Java Client User Guide*.

#### VoIP UA to UA Call

The VoIP UA to UA Call feature allows a VoIP UA application to be selected as a server for the VoIP UA that is currently configured by the user. This feature allows call quality to be measured for both Callee and Caller where a VoIP UA calls a VoIP UA directly without going through a SIP proxy.

#### SIP Interoperability with RFC 2543

The VoIP UA application has been updated to support SIP Calls which do not use a unique branch parameter as allowed in the obsolete RFC 2543. This is to support interoperability with SIP implementations based on that RFC which may not use unique branch parameters.

#### SIP Client Display Name Field

This change exposes a field in the VoIP UA that allows the SIP Client Display Name field to be configured. This is part of the SIP "From:" field which identifies who is originating the call. This is an optional field and is not currently filled out by the VoIP UA. You can now use this field as a unique extension number for each UA.

## 1.3. RTSP Response Codes

When RTSP Client is configured to emulate Setup and Content Delivery Servers enabled via Global Settings the following statistics will provide more detail on the reasons for session terminations. The appropriate statistic is updated each time an RTSP TEARDOWN message is sent with the matching reason code.

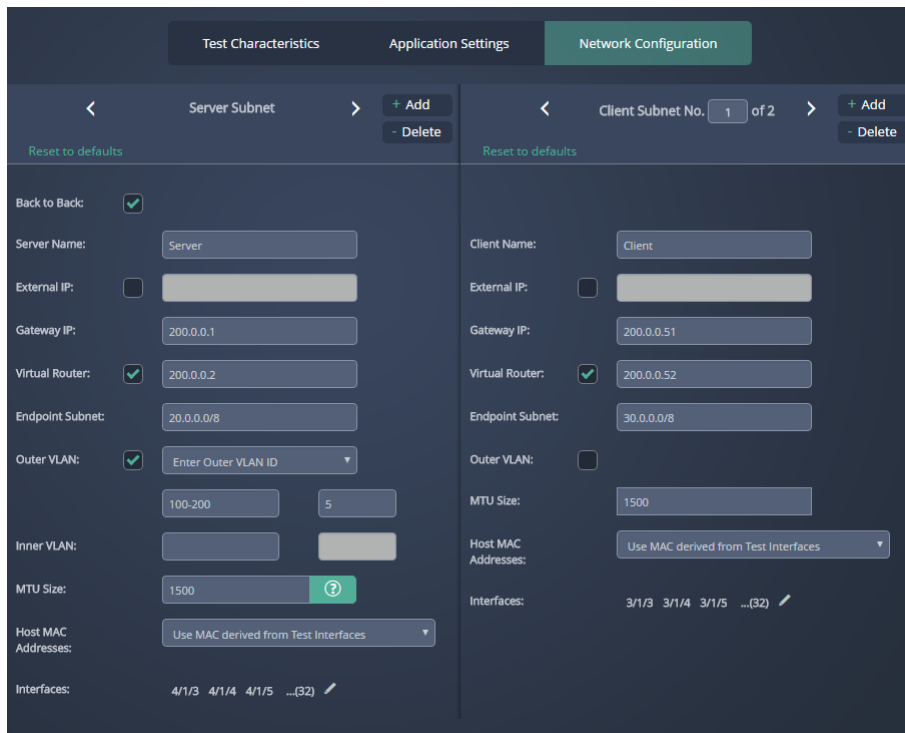
*Table 1-1. Statistics and TEARDOWN Reason Message Text*

Statistic Name	TEARDOWN Reason Message Text
SessTermClientStopRsn200	200 User Pressed Stop
SessTermStreamEndRsn201	201 End of Stream
SessTermNoMediaReceivedRsn400	400 Fail to Tune
SessTermLossOfMediaRsn401	401 Loss of Tune
SessTermKeepAliveFailRsn420	420 Settop Heartbeat Timeout
SessTermSetupFailRsn1000	1000 SETUP process failed
SessTermPlayFailRsn2000	2000 PLAY process Failed
SessTermICEFailRsn2480	2480 ICE Processing Failed

## 1.4. HTML5 Network Settings Improvements

Improvements have been made to the Network Settings that enable options for VLAN increments. Support has been added for the VLAN range as a contiguous interval which allows increment or a defined set of values delimited by a semi-colon. The following screen shot shows the changes in the **Network Configuration** Tab.

Figure 1-1. Network Configuration Changes



The table shows the added parameters for the VLAN increments. For more information about the Network Settings improvements, see the *TeraVM User Guide*.

Table 1-2. Network Configuration Tab VLAN Parameter Changes

<b>Inner VLAN</b>	<p>This field is editable only if you set an Outer VLAN ID, either using the one set in the Logical Port, or set it manually in the Outer VLAN ID field.</p> <p>Server/Client VLAN ID on application side of the host. Can accept: single VLAN ID, a range of VLAN IDs, and a fixed list (separated by a semicolon) of VLAN IDs.</p>	<p>Optional. Default is none. Examples of valid values:</p> <ul style="list-style-type: none"> <li>• 5</li> <li>• 100-200</li> <li>• 5;100-200</li> <li>• 5;10; 100-200</li> </ul>
<b>Increment VLAN Step</b>	<p>This value defines the incremental step that VLANs are configured in. Editable when a VLAN range or list has been entered into the Inner VLAN field.</p>	<p>Optional. Can accept a range from 1 – 4095.</p>

<b>Outer VLAN</b>	Server/Client VLAN ID on gateway side of the host. Can accept: single VLAN ID, a range of VLAN IDs, and a fixed list (separated by a semicolon) of VLAN IDs	Optional. Default is none. Examples of valid values: <ul style="list-style-type: none"> <li>• 5</li> <li>• 100-200</li> <li>• 5;100-200</li> <li>• 5;10; 100-200</li> </ul>
<b>Increment VLAN Step</b>	The value that defines the incremental step that VLANs are configured in. Editable when a VLAN range or list has been entered into the Outer VLAN field.	Optional. Can accept a range from 1 – 4095.

## 1.5. Microsoft Active Directory Service Improvements

Changes were made to the method of checking the status of the LDAP server. A specific command is now used instead of a network call. When the LDAP is configured, the Domain name is now visible in the HTML5 login page and has a link next to it that goes to the Executive Utilities page. The error messages in the HTML5 related to the LDAP have also been improved for better troubleshooting purposes.

## 1.6. Centralized Test Library

The Centralized Test Library has been updated with a new TCP Maximum Connections per Second Test, and has also had the existing Cyber Security Resiliency Test updated. For the full details about these tests and how to run them, see the *TeraVM User Guide*. A brief description of the test changes follows.

### 1.6.1. TCP Maximum Connections Per Second Test

Use this test for investigating the number of TCP Connections Per Second (CPS) that your system under test can handle. The outcome of this test is determined by the amount of established connections (Established Connections/s) evaluated against the targeted connections per second (Target CPS). As well as the targeted connections per second been configurable, you can also set the number of hosts, number of applications per host, and network parameters.

#### Pass/Fail Criteria

- This test will be labelled as PASS only if the Connections Per Second (CPS) obtained from the test is greater than or equal to the user's 'Target CPS' value in steady state.

## 1.6.2. Cyber Security Resiliency Test

This test has functionality added to it in this release. When running this test it is now possible to set parameters for background traffic. This allows you to set the type of traffic, with a choice of TCP or none, and the throughput of the traffic, as well as parameters for the number of subnets along with an option to use different subnets for attacks.



## Chapter 2. Upgrading to this Release

### Important

You must check to see if your upgrade process is impacted by any of the following conditions.

- **Pre-12.0 Introduction of TeraVM Executive**

TeraVM 12.0 was a major release, with many new features and architectural changes to the product. Therefore, if you are migrating from a pre 12.0 release, you **must** deploy the TeraVM Test Modules and the TeraVM Executive to use TeraVM successfully.

- **Pre-12.1 to Post 12.1: Authentication Service**

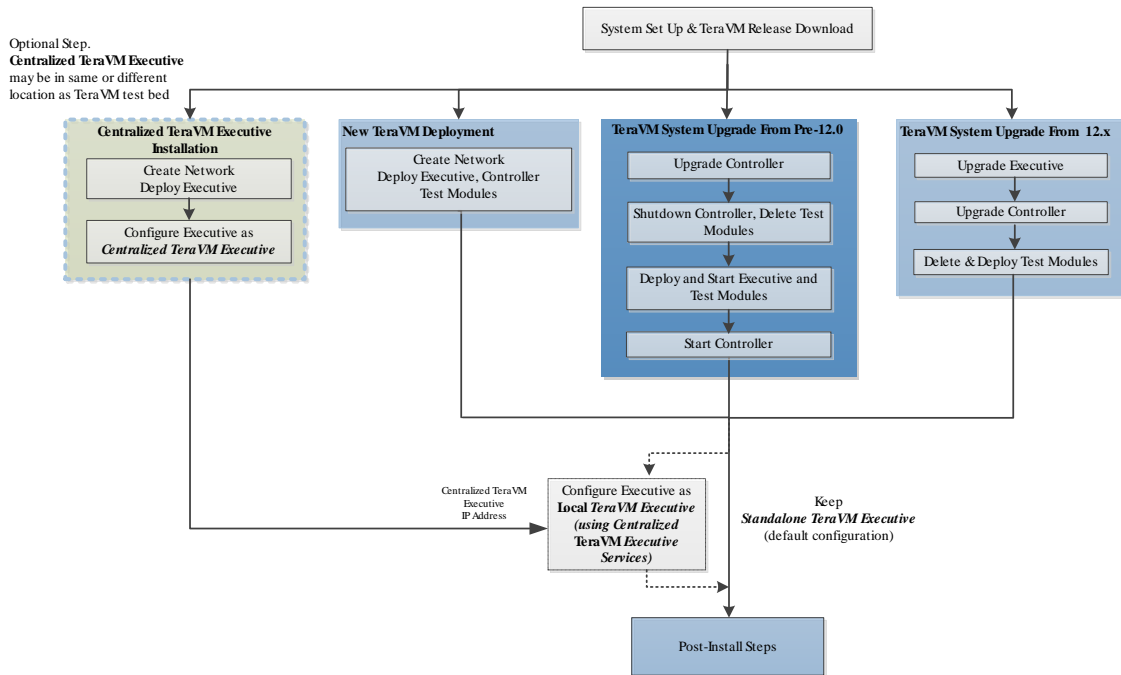
If upgrading from a pre-12.1 to post 12.1 release, you will see the message **The Authentication Service From the Executive Machine Could Not Be Reached**. To get round this, in the browser, you must amend the TeraVM Controller IP with :8181. For example: `http://TVM-C IP:8181`.

- **12.1 Security Certificate Required**

When upgrading from pre-12.1 to post-12.1 and trying to reach the Executive or Controller via the browser, the browser displays a connection not secure dialog. This dialog will differ form browser to browser. You must add an exception to accept a security certificate before you can log into the Executive or Controller. You will also need to do this the first time that you open Pool Manager from the UI.

An overview of the TeraVM install and upgrade process is shown below. For details on installing or upgrading to this release, please see the relevant hypervisor/cloud guide.

Figure 2-1. Installing or Upgrading to Release 13.0



## 2.1. Check Your Current Versions against Upgrade Installer

The Upgrade installer can be used in conjunction with the versions listed below. If the release you are currently using is not listed, please contact Cobham support.

### Attention

If you are upgrading from a release prior to 11.0, please contact Cobham support as you may need to run an additional step.

Release versions use the following convention:

“Major.Minor-BuildNumber” or “X.Y-Build”

where X represents the major version, Y the minor version.

Table 2-1. Controller Releases Supported by Installer

11.0-257	11.0.1-259	11.1-300
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2.1. Check Your Current Versions against Upgrade  
Installer

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11.2-334	11.2.1-339	11.3-379
11.3.1-401	11.3.2-420	11.4-613
12.0-1454	12.0.1-1692	12.0.2-1961
12.0.2-1996	12.0.3-2053	12.0.2-2030
12.1-3090	12.1-3110	12.1.1-3121
12.1.2-3152	13.0-3297	

*Table 2-2. Executive Releases Supported by Installer*

1.0	1.1	1.2
1.3		

## Chapter 3. Platforms

### 3.1. Hardware

The matrix below shows which hardware TeraVM has been certified on.

Figure 3-1. Hardware Platforms

Cisco UCS		DELL	
Model	NIC	Model	NIC
C240	Cisco VIC 1285 PCIe Ethernet NIC (40Gig)	R630	Intel 82599EB 10-Gigabit SFP
	Cisco Systems Inc VIC 1225 PCIe Ethernet NIC (10Gig)		Intel 10-Gigabit X540-AT2
C220	Cisco Systems Inc VIC 1225 PCIe Ethernet NIC (10Gig)		Mellanox ConnectX4 (100Gig)
C200	Cisco Systems Inc VIC 1225 PCIe Ethernet NIC (10Gig)	R620	Intel 82599EB 10-Gigabit SFP
B200	Cisco Systems Inc VIC 1225 PCIe Ethernet NIC (10Gig)		Broadcom (1G)

### 3.2. Hypervisors

The 13.0 release has been tested with the following hypervisors and versions (AWS, XEN and Azure platforms are tested with major releases):

Table 3-1. Hypervisors

Hypervisor	Hypervisor Version	TVM Version	TVM Types*	vSwitch Type	Executive Version	Virtual NIC
ESXi***	5.5.0	3.0.12	See ***	VMXNET3	1.2	VMware VMXNET3 virtual interface

\*\* For KVM on Red Hat, OVS 2.0.2 is supplied as part of TeraVM.

#### \*\*\*Additional ESXi Information

- ESXi supports TVM-2 to TVM-5, TVM-7, TVM-8 and TVM-16.
  - TVM-7 is supported for VPN applications only.

- TVM-8 and TVM-16 are for use with Mellanox Cards. They require a minimum version of ESXi of 5.5.0. Unlike other Test Module types which have only one core for interrupt processing, TVM-8 and TVM-16 use half of their cores for control.
- ESXi 5.5.x supports both Direct Path/DPIO and virtual switch configurations.
- You can now specify a solid state drive when deploying TeraVM.
- TeraVM is now also tested with ESXi version 6.0, but is not fully certified in performance tests.

**Note**

- vSphere/vCentre v6.0 supports Direct Path and vSwitch only. (SR-IOV is not supported).

### 3.3. Operating Systems

Figure 3-2 shows the operating systems that TeraVM Java Client has been tested with.

*Figure 3-2. Operating Systems*

<b>Operating Systems</b>	
Windows	8.10
MAC OS X	10.10.4
Ubuntu	14.04.1

### 3.4. Web Browsers

TeraVM is developed to work with modern web browsers.

Figure 3-3 shows the web browsers that TeraVM has been tested with. Cobham will make every reasonable effort to support older versions.

*Figure 3-3. Web Browsers*

<b>Web Browsers</b>	
Mozilla Firefox	39
Internet Explorer	11.0.9600.17842
Safari (in Mac OS)	5.1.8
Google Chrome	44.0.2403.157 m

## Chapter 4. Bugs Fixed and Known Issues

### 4.1. Bugs Fixed

The following defects were addressed in this release. For further details, please contact Cobham support.

*Table 4-1. Bugs Fixed in This Release*

Bug Number	Description
23602	Web Admin - Global Settings shortcut link needs to point to new page
23828	RTSP issuing TEARDOWN Loss of Tune whilst still receiving media
23843	VoIP IPv6 fragment reassembly cannot reassemble three 3 fragmented packets
23851	HTTP Client Mean GET time for POST command counted twice or is halved
23862	RTSP Mean Session Duration appears to accumulate after each session
23874	Suite B cipher suite does not work against VoIP UAS Handshake Failure
24009	Vpn.pl Script and PacketRouting Functionality
24041	Immediate Stop when Stopping Global Setting retains MOS on Client Side for Out of Serv
24058	Multi Cert Authentication Segmentation Violation

### 4.2. Known Issues

These are the known issues in this release. For further details, please contact Cobham support.

*Table 4-2. Known Issues in this Release*

Bug Number	Description
21453	IGMP JPS test stops on KVM
21519	Cannot run test on SR-IOV enabled NetXtreme II NICs when 1 TA is using more than 1 VF on the same PF
22724	Copy/Paste Function has been removed from the Java Client.
22759	On deploying a fresh RHEL 7.1 system the fourth TVM does not always start
22808	TestGroup is being stopped with Exception if another user attempts to run a test on the same ports.
22858	Juniper NC ESP VPN: srrd>Agent (mlips) session ended unexpectedly with Error When Running Test

22918	Scaled TeraFlow Servers Validation on same Scaled Host seems incorrect
23021	Controller hangs at "request interfaces from Pool Manager". CLI JVM dies and automation fails
23382	Anyconnect SSL with Failover enabled sends increasing CSTP Frames each failover
23426	java.lang.OutOfMemoryError: Java heap space (v12.0.2 Build 2027)
23605	<p>KVM: Java GUI crashes after a PDU capture</p> <p><b>Note</b></p> <p>This is due to an MTU mismatch between the Client PC and the Management port. Set these to the same value to prevent this networking issue from occurring.</p>
23625	Unable to login into TVM-C's webpage after upgrading the TeraVM Executive from 1.0-353 to 1.3-836
23678	If the JAVA UI is open while the CSDB test with 11k pcaps is running, it runs out of heap memory after 7k pcaps.
23683	Unfriendly exception when running EMIX ThroughPut or Soak test with External IPs
23739	Using Chrome to browse to PM UI sometimes causes the UI to freeze when PM has 1,000+ logical ports.
23788	Problems checking out a test from the CTL
23765	CSDB upgrade should not be allowed on RDA platform
23771	Cannot run a test with the same VLAN on different Test Modules
23785	Cannot share a CSDB test
23875	Sometimes the deployment of SR-IOV (RDA) results in the wrong Mac addresses being used on interface
ubi00118841	VoLTE "silent" call detection



## Appendix A. TeraVM Documentation Set

All TeraVM Guides are available for download at the TeraVM documentation portal:

<http://ats.aeroflex.com/login-account>

The complete TeraVM documentation set is listed below.

*Table A-1. TeraVM User Guides*

User Guides	Description
Release Notes	New features / Changes in the latest release. (Includes supported versions).
TeraVM User Guide	TeraVM overview includes setting up and running tests in the HTML5 UI, Centralized Test Library.
TeraVM Java Client User Guide	How to create and run tests in the Java Client: Details of applications and hosts supported. There are also separate application notes for Citrix ICA, SIP trunking and EoGRE.
TeraVM CLI User Guide	Using the Automation Interface (CLI, Perl commands and RFC scripts) for testing. Also man pages are available for commands and scripts in the Documentation sub-directory <i>cli</i> .
TeraVM Appliance Set Up Guide	TeraVM Hardware Appliance Set Up (Appliance Customers only).
TeraVM vRAN User Guide	Combined NG4T / Cobham solution for RAN, Core and Peripheral IP Emulation for 4G.
TeraVM Licensing Guide	How to set up and configure licensing features, e.g. set up license servers and license reporting.
TeraVM Application Library Test Configuration Guide, Application Library Repository Users Guide	Traffic generation test solution for creating application flows. Includes repository setup information.

*Table A-2. Hypervisor/Cloud Specific TeraVM Set Up Guides*

Hypervisor/Cloud Environment	Document Name
ESXi	TeraVM on VMWare Set Up Guide
KVM	TeraVM on KVM Set Up Guide
OpenStack on KVM	TeraVM on OpenStack Set Up Guide
Citrix XenServer	TeraVM on Citrix Xen Set Up Guide
Hyper-V	TeraVM on Hyper-V Set Up Guide
Amazon AWS	TeraVM on Amazon AWS Set Up Guide
Microsoft Azure	TeraVM on Microsoft Azure Set Up Guide

*Table A-3. TeraVM Reference Guides*

<b>Reference Guides</b>	<b>Description</b>
TeraVM Metrics Guide	Statistics/Metrics available with TeraVM
CLI Reference Guides (under <i>Documentation/cli</i> ).	Man pages are available for commands and scripts in the Documentation sub-directory

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