

TeraVM

**COBHAM**

The most important thing we build is trust

# TeraVM Release Notes

*TeraVM Release 13.4.1*



## 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 this Release</b> .....	<b>1</b>
1.1. Configurable Ramp-up Options .....	1
1.2. API Call Get Values of Current Metrics .....	3
<b>Chapter 2. Patches</b> .....	<b>4</b>
2.1. Patches from Previous Release .....	4
2.2. Installing a Patch .....	4
<b>Chapter 3. Upgrading to this Release</b> .....	<b>6</b>
3.1. Upgrade from 13.1 Pre Upgrade Step .....	8
3.2. Upgrading Off Controller Repository .....	9
3.3. Check Your Current Versions against Upgrade Installer .....	10
3.3.1. Download and Install Upgrade .....	11
<b>Chapter 4. Platforms</b> .....	<b>14</b>
4.1. Hardware .....	14
4.2. Hypervisors .....	14
4.3. Operating Systems .....	15
4.4. Web Browsers .....	15
<b>Chapter 5. Bugs Fixed and Known Issues</b> .....	<b>16</b>
5.1. Bugs Fixed .....	16
5.2. Known Issues .....	17
5.2.1. Controller Settings .....	17
<b>Appendix A. TeraVM Documentation Set</b> .....	<b>19</b>

# Chapter 1. What's New in this Release

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

## 1.1. Configurable Ramp-up Options

The ramp-up period of a TCP based adaptive test is now configurable. The number of steps and step duration can be adjusted when an **Objectives > Target** value is entered and the **Strategies** tab **Policies** options are set accordingly. The **Pool Manager Mode** must be selected and the **Test Module Assignment** must be set to **Static**.

To give an example of this feature in use, if you use the HTTP Throughput test, for example, and configure the test so that the **Target** Throughput is set to **150Gbps** with the **No. of Steps** at **10** and the **Step Duration** at **30** seconds. You must also specify how many test modules are used for the test. You then run the test, the specified number of test modules is checked out; TeraVM attempts to increase the traffic rate by 15Gbps in each of the 10 steps with each step having a duration of 30 seconds.

The configuration of this test is described further in the procedure that follows. This feature is applicable to the following TCP based adaptive tests in TeraVM.

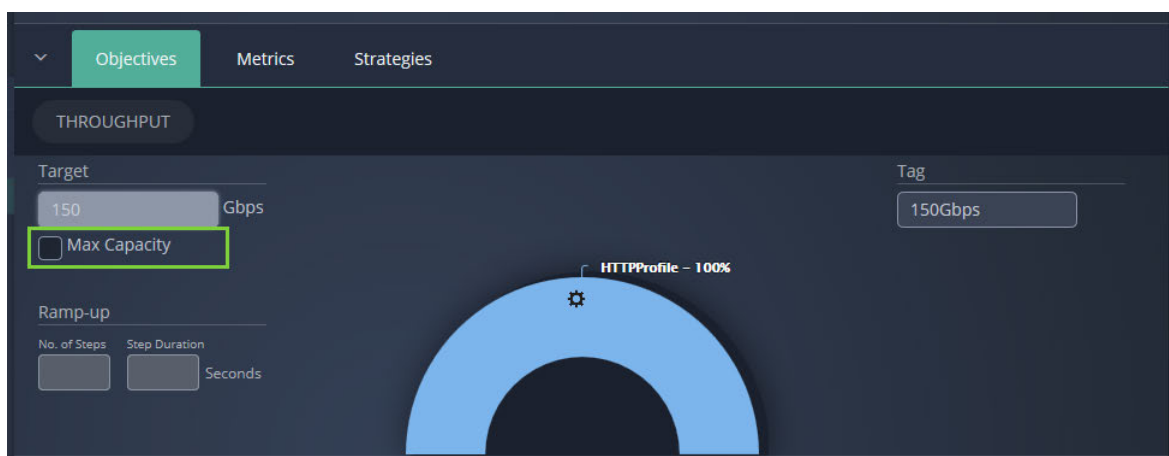
- HTTP
- 450Byte
- 21K HTTP Download
- HTTP-CPS

### Configuring Steps and Step Duration

Use this procedure to set the number of steps and step duration of a TCP based Adaptive test.

1. Log in to the controller and from either the Workspace or Library, checkout a TCP based adaptive test such as the adaptive HTTP Throughput test.
2. From the **Objectives** tab under the **Target** options, deselect **Max Capacity** and enter a value for the **Target**.

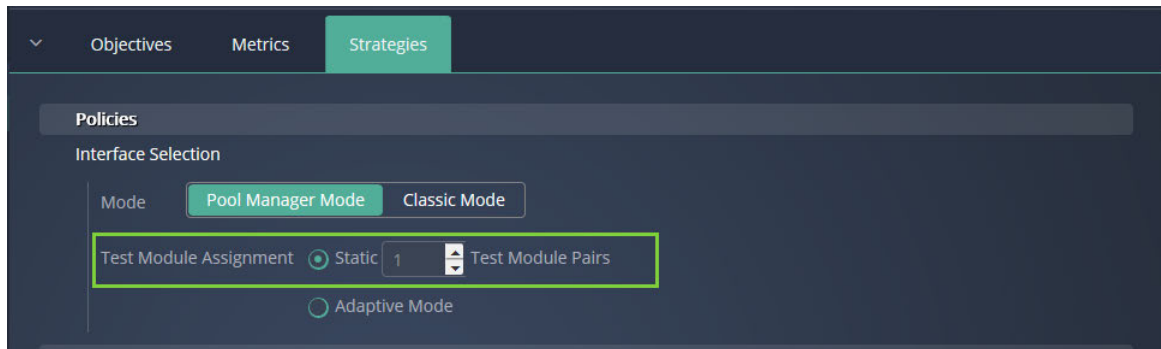
Figure 1-1. Enter Objective Target value



- From the **Strategies** tab, ensure the **Pool Manager Mode** is selected and select **Static** for **Test Module Assignment**. You can then alter the number of **Test Module Pairs** that are designated for the test.

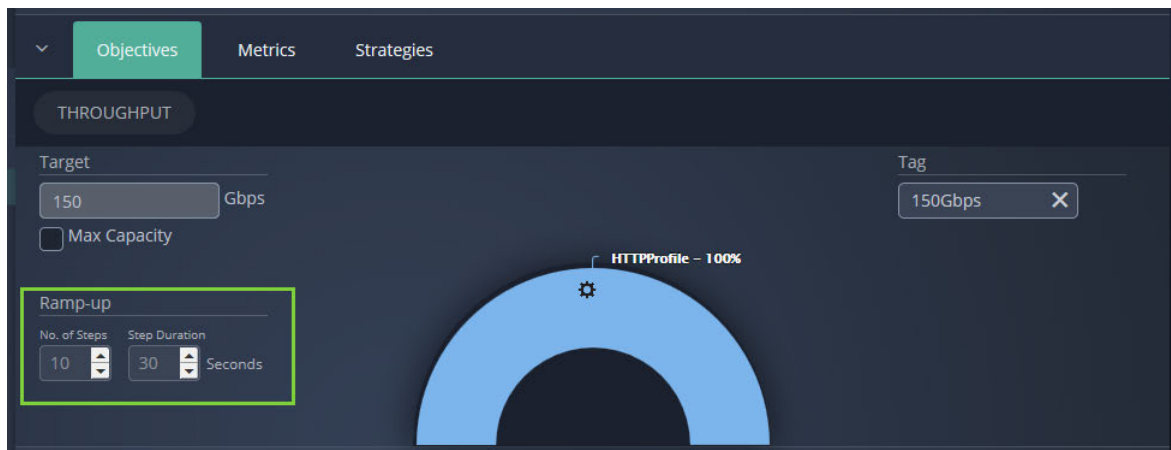
**NOTE:** the number of **Test Module Pairs** must be lower or equal than the number of available pairs of test modules currently registered in the Pool Manager.

Figure 1-2. Static Test Module Assignment



- Go back to the **Objectives** tab and adjust the **No. of Steps** and **Step Duration** as required.

Figure 1-3. Adjust Ramp-up



- Save and Run test.

## 1.2. API Call Get Values of Current Metrics

An API call to get the values of current metrics in an HTTP test is included with this release.

Get list of available metrics:

```
curl 'https://ip-address/v1/workspace/metrics/kpis/adaptiveTestId/1' -i -H
      'Accept: application/json' -H 'userid: jsmith'
```

**Example response:**

```
[
{"name": "Out bits/s", "group": "Interface"}
]
```

Get the current value of the metric:

```
curl 'http://<ip-address>/v1/workspace/results/stats/adaptiveTest/<test ID>/latest'
```

**METHOD:** POST

**HEADERS:**

**Accept:** application/json

**Content-type:** application/json

**userid:** <user>

**POST REQUEST BODY:**

```
[
{ "name": "Out bits/s", "group": "Interface" }
,
{ "name": "Out of Sequence Packets", "group": "HTTP Client" }
,
{ "name": "Out of Sequence Packets", "group": "HTTP Server" }
]
```

**Example Response:**

```
{ "Out of Sequence Packets-HTTP Server": 0, "Out bits/s-Interface": 19293945968,
  "Time": "2017-11-06 07:02:13.400000+0000", "Out of Sequence Packets-HTTP Client": 0 }
```

## Chapter 2. Patches

No new patches were made available in this release.

### 2.1. Patches from Previous Release

The following table includes the details of the patches made available in release 13.3 release.

*Table 2-1. Patch Deliverables from TeraVM 13.3*

File Name	Location	Description
bug_24370_patch-98151-upload.tgz	13.2 release folder.	Failed to import Certificates Resource. Could not transfer data file to server. Upgrade on the Controller.
bug_24233_patch-98152-upload.tgz	12.0.2 release folder.	DNS Server - non DNS env prevents httpd daemon from starting up. Upgrade on the Executive.

### 2.2. Installing a Patch

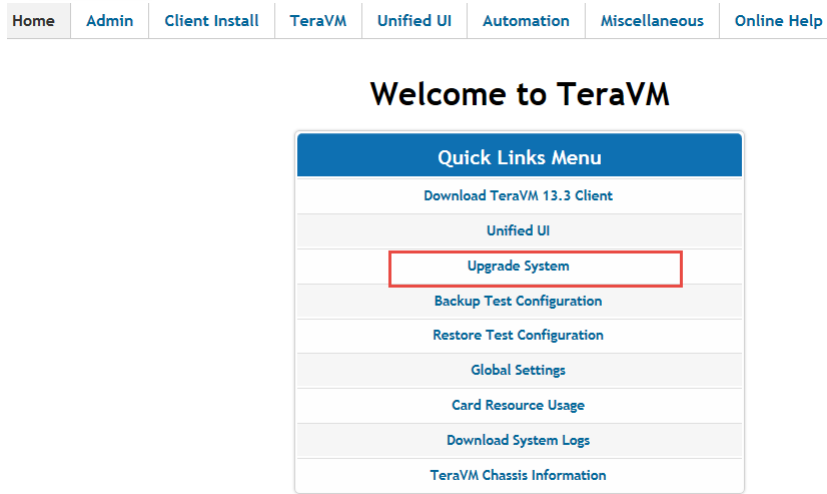
Use this procedure to install a patch using the HTML5 interface.

1. Download the patch from the relevant folder. Close any open TeraVM user interfaces and stop any tests.
2. In your browser, enter the IP address of the Executive/Controller.
3. Enter your *User Name* and *Password* and click **Sign In**.
4. Select **Utilities**.
5. From the *Welcome to TeraVM* page, select **Upgrade System** and login using:

*User Name:* **diverAdmin**

*Password:* **diversifEye**

Figure 2-1. Welcome to TeraVM



6. Select the **Choose File** button.
7. Select the appropriate patch file and click **Open**.
8. Click **Upload**. The file uploads in several seconds.
9. Click **Upgrade** and wait for the patch to complete upgrading.



## Chapter 3. Upgrading to this Release

As a general guideline, when upgrading to a new version of TeraVM, deploy the new TeraVM Management Assistant (TeraVM MA) and remove the previous version. The TeraVM MA is used for deploying new Test Modules, and when moving from TeraVM 11.4, it is used to deploy a TeraVM Executive.

The sequence of actions for the upgrade are:

### Required Upgrades

- TeraVM Executive (TeraVM ) – see [Section 3.3.1 Download and Install Upgrades](#). If your upgrading from 11.4, then you must deploy an Executive from the new TeraVM MA see the *TeraVM VMWare ESXi Setup Guide* for more information.
- TeraVM Controller (TeraVM and **d500/d1000**) – see [Section 3.3.1 Download and Install Upgrades](#)
- Delete the old Test Modules and then redeploy new Test Modules (TeraVM) – see the relevant platform set up guide.
- Upgrade Off Controller Repository (if using an Off Controller Repository) – see [Section 3.2 Upgrade Off Controller Repository](#).

### Optional Upgrades

- Off Controller Repository (TeraVM) see [Section 3.2 Upgrading Off Controller Repository](#)
- Cybersecurity (TeraVM)

For more release specific guidelines, you must follow the conditions below and refer to the appropriate TeraVM Setup Guide for your platform.

#### Important

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

### Installation Conditions

#### • Upgrading from 13.1

If upgrading from 13.1 to 13.2, 13.3, 13.4, or 13.4.1 you must follow the upgrade procedure from [Section 3.1](#), for both the Controller and the Executive. This is to ensure that you do not encounter a timeout while upgrading them.

#### • 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 from 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.

• **Upgrade to Off Controller Repository**

13.1 release includes performance improvements to the Off Controller Client Repository. If you have a have an installed Off Controller Client Repository, then use the procedure in [Section 3.2](#) to perform the upgrade.

TeraVM supplies a separate Client Repository which can be of unlimited size, external to the Controller (Off Controller). It comes as a separate virtual machine, and must be downloaded separately. The repository is sized at 32GB by default. You can increase this by adding disks in vSphere (you cannot remove or resize existing disks).

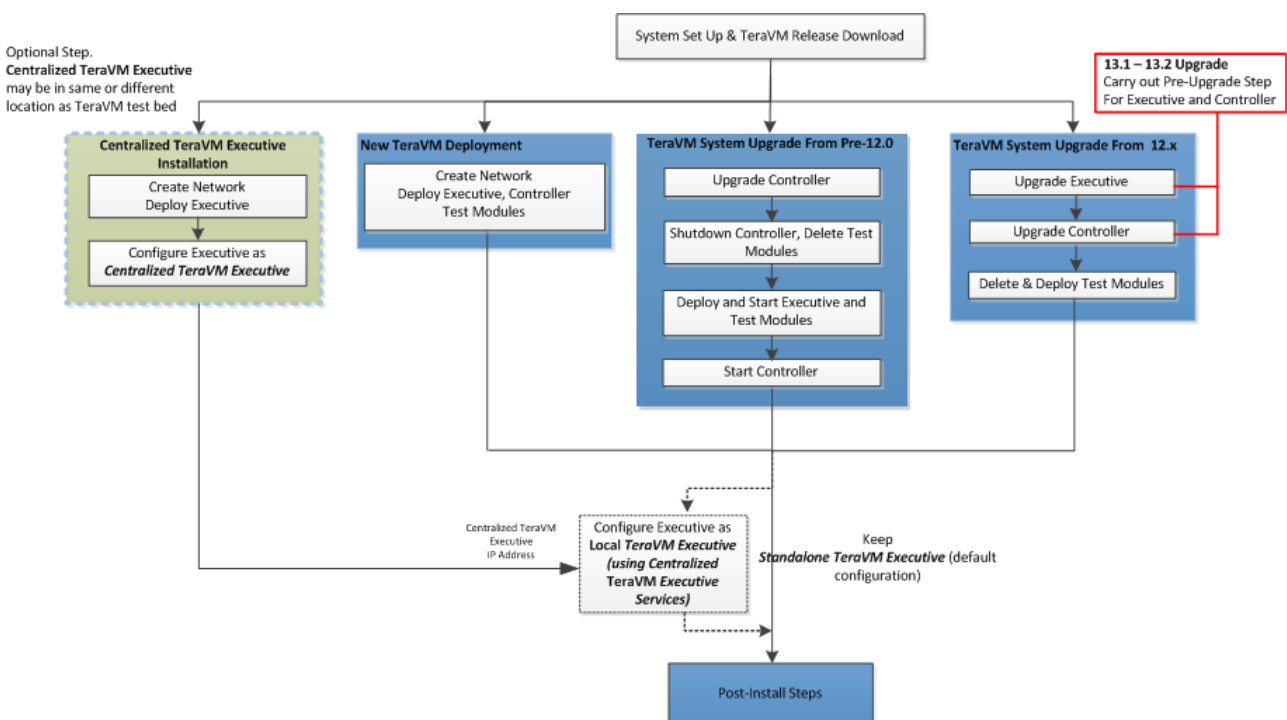
• **Cybersecurity Updates**

This release includes the addition of ETPro files, these files are only supported from TeraVM Controller version 13.3-4267 (this release) and onward.

When you perform this upgrade, all Cybersecurity Updates from the last Cybersecurity upgrade will be removed. Please download the latest Cybersecurity updates and reboot your controller before reinstalling. Contact support for details. This only applies if you have purchased the additional Cybersecurity Database license from Cobham.

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 3-1. Installing or Upgrading to this Release



## 3.1. Upgrade from 13.1 Pre Upgrade Step

This procedure must be done for both the TeraVM Executive and Controller before upgrading from TeraVM 13.1 to 13.2, 13.3, 13.4. or 13.4.1.

### Prerequisite

- Failure to follow this procedure during an upgrade will lead to a timeout or an error message. This will not negatively impact the upgrade, but you must follow this procedure and apply the pre-upgrade steps.

1. In your browser, enter the IP address of the Executive/Controller.
2. Enter your *User Name* and *Password* and click **Sign In**.
3. Select **Utilities**.
4. From the *Welcome to TeraVM* page, select **Upgrade System** and login using:

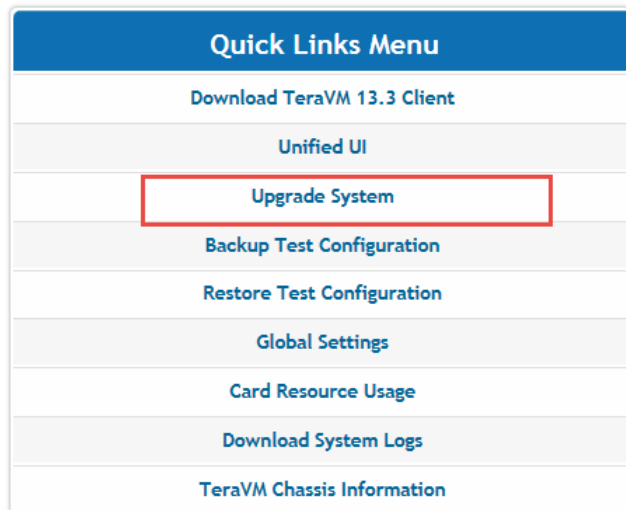
*Username:* **diverAdmin**

*Password:* **diversifEye**

Figure 3-2. Welcome to TeraVM

Home	Admin	Client Install	TeraVM	Unified UI	Automation	Miscellaneous	Online Help
------	-------	----------------	--------	------------	------------	---------------	-------------

## Welcome to TeraVM



5. Select the **Choose File** button.
6. Select the appropriate pre-upgrade file and click **Open**.

*TeraVM\_Controller-13.2\_preupgrade-98134-upload.tgz*

*TeraVM\_Executive\_1.6\_preupgrade-98132-upload.tgz*

7. Click **Upload**. The file uploads in several seconds.
8. Click **Upgrade**.
9. After the pre-upgrades have been completed continue with the Executive and Controller upgrades as normal.

## 3.2. Upgrading Off Controller Repository

Use this procedure to upgrade the Off Controller Client Repository.

### Note

If you are upgrading an Off Controller Repository deployed from 1.3-329 ova and you encounter the error message: **<unable to validate signature>**, please contact support.

### Prerequisites

- This procedure assumes you have a correctly installed Off Controller Client Repository.
- Check the Off Controller is supported in the following Supported Off Controller Repository table

*Table 3-1. Supported Off Controller Repository*

1.2-161	1.3-329	1.4-417
---------	---------	---------

1. Download the Client Repository Off Controller Upgrade file from the release folder > Upgrade folder: ClientRepositoryOffController\_Upgrade-\_upload.tgz.
2. In the vSphere Client ensure that the Client Repository Off Controller is powered on.
3. In the vSphere Client select the Client repository Off Controller and note its IP Address from the **Summary** tab in the **General** pane.
4. Enter the IP Address in your browser and make a note of the **Software Version** displayed under the **System Information**.



5. Select **Upgrade System**. *The Upgrade System page opens.*
6. Click **Browse** and select the Off Controller Client Repository Upgrade file that you previously downloaded.
7. Click **Upload**. *When completed, a file uploaded message is displayed.*
8. Click **Upgrade**.
  - An error is displayed in your browser. **Please note** that this is expected behavior.
  - If the error states **<unable to validate signature>** Please contact support.
  - Check the IP Address of the Client Repository Off Controller, it may have changed.
9. Enter the IP Address of the Client Repository in the browser and check the **Software Version** under the System Information panel. *The Software Version has incremented.*

### 3.3. 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 3-2. Controller Releases Supported by Installer

11.0-257	11.0.1-259	11.1-300
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	13.1-3699
13.1-3703	13.2-3946	13.3-4261
13.3-4267	13.3.1-2936	13.3.2-3024
13.3.3-3030	13.4-3092	13.4.1-4645

Table 3-3. Executive Releases Supported by Installer

1.0	1.1	1.2
1.3	1.4	1.5
1.6	1.7	1.7.2

### 3.3.1. Download and Install Upgrade

Use this procedure to install an upgrade using the HTML5 interface.

#### Installing an Upgrade

1. Download the upgrade from the location provided by Cobham support. Close any open TeraVM user interfaces and stop any tests.
2. In your browser, enter the IP address of the Executive/Controller.
3. Enter your *User Name* and *Password* and click **Sign In**.
4. Select **Utilities**.
5. From the *Welcome to TeraVM* page, select **Upgrade System** and login using:

*User Name:* **diverAdmin**

*Password:* **diversifEye**

*Figure 3-3. Welcome to TeraVM*

## Welcome to TeraVM

The screenshot shows a 'Quick Links Menu' with the following items: Download TeraVM 13.3 Client, Unified UI, Upgrade System (highlighted with a red rectangle), Backup Test Configuration, Restore Test Configuration, Global Settings, Card Resource Usage, Download System Logs, and TeraVM Chassis Information.

- 6. Select the **Choose File** button.
- 7. Select the appropriate patch file and click **Open**.
- 8. Click **Upload** and wait until the file has uploaded.

The screenshot shows a notification: "The file diversifEye\_...\_upload.gz has been uploaded". Below this, a table displays the current upgrade file details:

Current Upgrade File:	
Upload Date:	20-07-2017 14:13:06
File Size:	2.72 GB

Below the table, there is a section for changing the upgrade file:

**Change Upgrade File:**

New Upgrade File:

- 9. Click **Upgrade** and wait for the patch to complete upgrading.

### Note

The controller reboots twice during the upgrade procedure.

The upgrade progress can be followed using the Console on the VM or connecting to the Console on a physical system (d500/d1000).

If the system updates successfully, a message similar to the following appears:

```
MD5 checksum
-----
 7  upload.tgz
-----
Untarring payload
Validating signatures....validated
Unloading payload...finished
Running contained payload...
-----
The system will now be rebooted to perform the upgrade.
Progress messages can be observed on the system console.
The system will automatically reboot once the upgrade completes.
DO NOT MANUALLY REBOOT THE SYSTEM WHILE UPGRADING.
-----
Success!
Upload files successfully applied
finished
```

10. Otherwise, a message will appear with instructions about how to ftp the upgrade file to the system. Follow these instructions to complete the upgrade step.

**Note**

Older hardware may require ftp. Contact Cobham support if you run into issues.

11. If you are a TeraVM Cybersecurity user, and have not already updated to the latest Cybersecurity Database, notethat this is an extra step in the upgrade process. For further details, contact Cobham Support.
12. Next, continue to the relevant platform set up guide, for example, VMWare EXSi, to deploy the TeraVM Test Modules and Executive.



## Chapter 4. Platforms

### 4.1. Hardware

#### Hardware Platforms

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

Cisco UCS		DELL	
<i>Model</i>	<i>NIC</i>	<i>Model</i>	<i>NIC</i>
C240	Cisco VIC 1285 PCIe Ethernet NIC (40Gig)	R630	Intel 82599EB 10-Gigabit SFP
			Intel 10-Gigabit X540-AT2
C220	Cisco Systems Inc VIC 1225 PCIe Ethernet NIC (10Gig)		Broadcom (1G)
		R620	Intel 82599EB 10-Gigabit SFP
			Broadcom (1G)

### 4.2. Hypervisors

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

Table 4-1. Hypervisors

Hypervisor	Hypervisor Version	TVM Version	TVM Types*	vSwitch Type	Executive Version	Virtual NIC
ESXi***	ESXi 5.5_U1 and U3		See ***	VMXNET3	1.7.2	VMware VMXNET3 virtual interface
KVM	Ubuntu 14.04.1/libvirt 1.2.2		TVM-5	OVS 2.0.2	1.7.2	virtio
	RedHat 7.1/libvirt 1.2.8-16**		TVM-5	Supplied with TeraVM	1.7.2	
AWS	AMI Virtual Private Cloud		TVM-2	Supplied by Amazon	1.7.2	N/A

\*\* 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).

## 4.3. Operating Systems

The following table shows the operating systems that TeraVM Java Client has been tested with.

Table 4-2. Operating Systems

Operating System	Version
Windows	7,8
Fedora (32-bit)	22

## 4.4. Web Browsers

TeraVM is developed to work with modern web browsers that support HTML5.

The following table shows the web browsers that TeraVM has been tested with. Cobham will make every reasonable effort to support older versions.

Table 4-3. Web Browsers

Browser	Version
Mozilla Firefox	42.0.49
Internet Explorer	11
Google Chrome	56

## Chapter 5. Bugs Fixed and Known Issues

### 5.1. Bugs Fixed

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

There were no bugs fixed in this release.

## 5.2. Known Issues

A known issue may occur when rebooting an upgraded, to 1.4, Off Controller Repository where the TeraVM Executive IP address needs changing. Where this occurs use the following procedure.

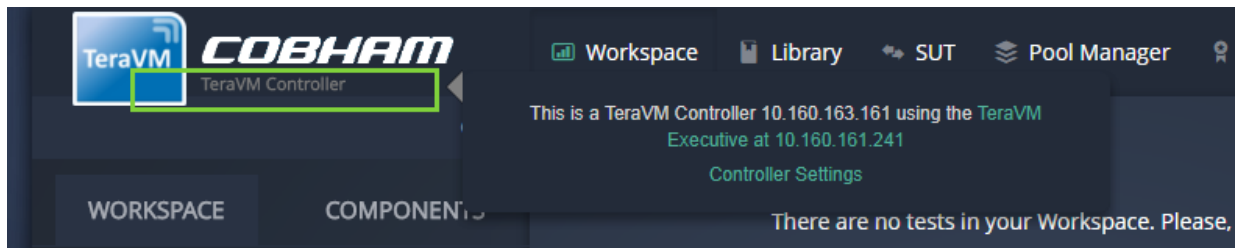
### 5.2.1. Controller Settings

A new **Controller Settings** link can be accessed under the Cobham logo on the TeraVM Controller. This setting improves the accessibility for setting a new Executive IP Address. This feature can be used if you want to quickly set a new Executive IP address.

To change the Executive IP Address:

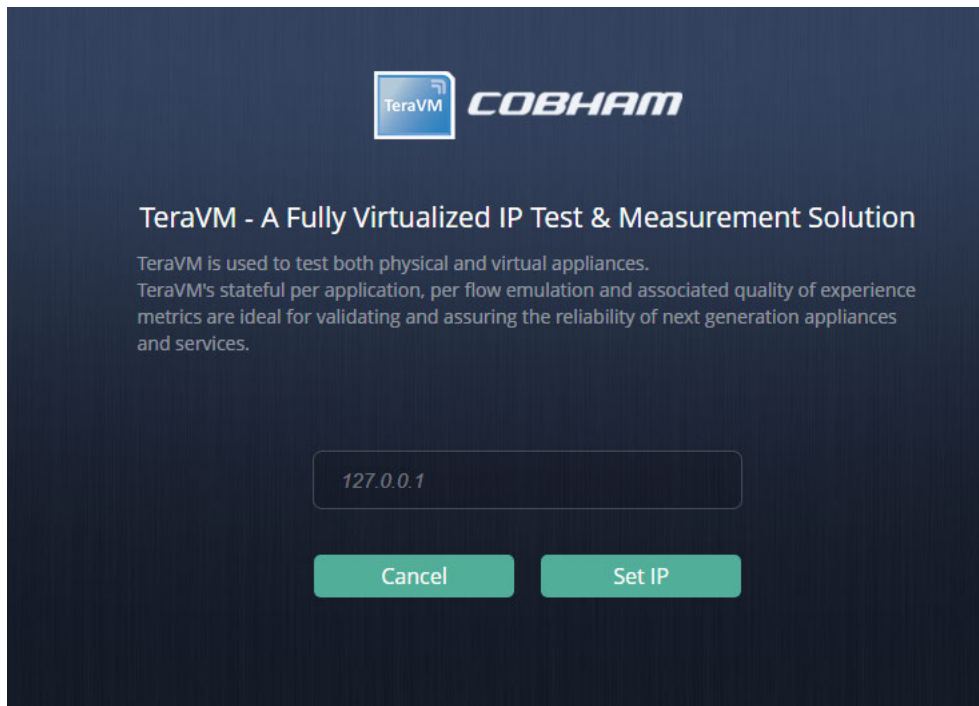
1. Click the **TeraVM Controller** link under the Cobham logo, in your TeraVM Controller UI, to open the **Controller Settings** dialog box.

Figure 5-1. Controller Settings



2. Enter the Executive IP Address in the IP Entry Field and click **Set IP**.

Figure 5-2. Set Executive IP Address



3. In ESXi vSphere client, restart the TeraVM Executive and TeraVM Controller.
4. The new Executive IP is set.

## 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 HTML5 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

---

## Copyright

© Copyright 2017 Cobham Wireless Limited, a Cobham Test Solutions Company.

All rights reserved, subject to change without notice.

The material contained in this document is for general information purposes only and does not constitute technical or professional advice.

All third party trademarks are acknowledged in this document.

All copyrights in and to the software product are owned by Cobham Wireless or its licensors. The software is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties.

## End User License Agreement

The usage of the TeraVM product and documentation is subject to the Aeroflex Ireland Ltd standard Software Licence Agreement, which is available at [TeraVM License Agreement](#).

Please read the terms of the Software Licence Agreement carefully before using the documentation.